Department of the Army
Permit Evaluation and Decision Document

CENAB-OP-RMS (MD SHA and MdTA/Intercounty Connector)
2005-60011

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CENAB-OP-R

DEPARTMENT OF THE ARMY PERMIT EVALUATION AND DECISION DOCUMENT

SUBJECT: Department of the Army Permit Application/Permit Number CENAB-OP-RMS (MD SHA& MdTA/Intercounty Connector) 2005-60011

This document constitutes the United States Army Corps of Engineers, Baltimore District's (Corps') Record of Decision (ROD) on the project known as the Intercounty Connector (ICC), in conjunction with an individual permit issued herewith authorizing the discharge of dredged or fill material into Waters of the United States pursuant to Section 404 of the Federal Water Pollution Control Act, more commonly known as the Clean Water Act (CWA). The ICC is a proposed highway linking I-270 in Montgomery County, Maryland, to US Route 1 in Prince George's County, Maryland. The lead federal agency is the Federal Highway Administration (FHWA) and the lead state agencies are the Maryland State Highway Administration (SHA), the Maryland Transportation Authority (MdTA), and the Maryland Department of Transportation (MDOT). The permit applicant is the SHA. This document contains information explaining the Corps' decision-making process, followed by an analysis of the impacts of the alternatives that were studied in detail in the Draft and Final Environmental Impact Statements (DEIS and FEIS), and an explanation of how the Corps considered those impacts in making its permit decision. The relevant statutes are Section 404 of the CWA and the National Environmental Policy Act (NEPA).[1] The Corps' implementing regulations for NEPA[2] and Corps individual permits[3] are also applicable. This document supports the issuance of a Section 404 permit for Corridor 1 of the ICC.

The FHWA as the lead Federal agency for NEPA compliance is responsible for supervising the preparation of the DEIS and FEIS. As a federal agency with jurisdiction by law over the proposed ICC project, the Corps agreed to become a cooperating agency in the EIS process, and provided its expertise throughout that process to assess the impacts to aquatic resources, participated in the development of alternatives to avoid and minimize impacts to aquatic resources, participated in the development of a mitigation plan for aquatic resources, and makes this permit decision for the project. In making a permit decision, the Corps has relied heavily on the contents of the DEIS and FEIS (including their appendices and the supporting technical documents), and except as expressly indicated in this document, the Corps hereby

[1] 42 U.S.C. §§ 4321-4370(f) (2005); 40 C.F.R. Pts. 1500 *et seq.* (2005).

[2] 33 C.F.R. Pt. 325, app. B (2005).

[3] 33 C.F.R. Pts. 320-329 (2005).

adopts and incorporates by reference those documents into this Record of Decision. However, other than the activities to which the Corps lent its expertise (relating to aquatic resources), the Corps has deferred to the expertise of the lead federal agency which conducted an exhaustive study process and consultation with various Federal, State, and local agencies and stakeholders, and members of the public who offered opinions as to matters within their expertise and interest.

As provided in Council on Environmental Quality (CEQ) regulations, a Federal agency may adopt another agency's FEIS for purposes of satisfying its own agency's NEPA compliance requirements.[4] A cooperating agency may adopt the EIS of a lead Federal agency, without recirculating it, when the cooperating agency concludes, after an independent review of the EIS, that its comments and suggestions have been satisfied, and issues a Record of Decision. The Corps hereby adopts the FHWA's FEIS for the Intercounty Connector, dated 3 January 2006, including the DEIS and any supporting technical documents and studies on which the conclusions in the FEIS are based, but excluding the Final Section 4(f) Evaluation.[5] However, the decision to not adopt the Final Section 4(f) Evaluation is not an indication that the Corps is dissatisfied with the contents of that document. Rather, Section 4(f) of the U.S. Department of Transportation Act of 1966 applies to projects funded by agencies of the U.S. Department of Transportation.[6] As such, the Corps is not subject to this regulation, nor is the Corps bound to abide by the Section 4(f) determination of the FHWA when making its permit decision. In other words, the alternative that the FHWA determines to satisfy Section 4(f) may or may not be the alternative that the Corps determines to satisfy Section 404 of the Clean Water Act. Consequently, by not adopting the Section 4(f) Evaluation, the Corps is signifying that it was not influenced by, nor did its decisions consider, the findings of the FHWA under Section 4(f). The Corps' decision is independent of the FHWA's 4(f) finding.

I. Process

A. Merged Process

Since 28 June 1994, the Corps and SHA have merged the NEPA and Section 404 permit processes for SHA highway projects. The impetus for merging the two processes was a publication produced by FHWA which showed the similarities in the two processes (e.g., both require an alternatives analysis and an assessment of environmental impacts) and the savings in time and money that could be achieved by merging the two processes. The major impetus for the

[4] 40 C.F.R. § 1506.3 (2005).

[5] *Final Environmental Impact Statement, Intercounty Connector from I-270 to US 1,* prepared by the Federal Highway Administration, the Maryland State Highway Administration, and the Maryland Transportation Authority (January 2006) (hereinafter *FEIS*).

[6] 49 U.S.C. § 303 (2005).

Corps' decision to participate in the merger was that the Corps realized it would have greater ability to ensure that the study included a meaningful analysis of alternatives if it became involved before SHA had invested considerable resources in support of a particular outcome.

"Maryland's Streamlined Environmental and Regulatory Process" ("Streamlined Process"), which was last revised in January 2000, is the document that describes the process by which SHA merged the Section 404 process into FHWA's NEPA-compliance regulations. It should be noted that the public involvement requirements of FHWA's NEPA-compliance regulations are more rigorous than the public involvement requirements of the Corps' regulatory program.[7] With the merger of the two processes, the more rigorous public involvement requirements of FHWA's regulations were retained. Key features of the Streamlined Process are as follows:

1. A sequential process was established for advancing the study. It involves three key milestones, and requires the concurrence of certain study participants at each milestone before advancing to the next phase. Once concurrence is provided, the concurring agencies agree not to revisit that issue unless new information surfaces that was not known at the time of the concurrence. The three concurrence milestones are:

Purpose and Need
Alternatives Retained for Detailed Study
Preferred Alternative and Conceptual Mitigation

2. Because the draft environmental document (EA or DEIS) contains a description of the alternatives, a statement of the purpose and need for the proposed activity, an alternatives analysis meeting the standards of the Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material,[8] a description of the environmental impacts of each alternative under consideration, and the other information specified in the Corps regulations, it can be used as the permit application.[9] There is no provision in the Corps' regulations which prohibits the permit application from evaluating more than one alternative, or that requires the proposal to be developed to a particular level of detailed design prior to submitting an application.

3. The public hearing can be conducted as a joint SHA/Corps public hearing, so that the Corps' public hearing requirements can be satisfied by the SHA hearing. This hearing also serves as a hearing for the Maryland Department of the Environment (MDE) as it relates to

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[7] *Compare* 23 C.F.R. § 771 (2005) (FHWA's NEPA regulatory process) *to* 33 C.F.R. §§ 325 app. B and 327 (2005) (Corps regulatory process).

[8] 40 C.F.R. § 230.10(a)(1)(ii)(4) (2005).

[9] *See* 33 C.F.R.§§ 325.1(c) - (d) and 325.3(d) (2005) (stating application requirements).

that agency's analysis of impacts to aquatic resources regulated by the state. The public notice is prepared as a joint public notice which includes the information required by 33 CFR 325.3, and is distributed to everyone on SHA's mailing list as well as the adjoining property owners, as specified in 33 CFR 325.3(d). The Corps' permit process neither requires nor prohibits conducting a public hearing while there is more than one alternative under consideration. The Corps' regulations encourage conducting joint hearings. By receiving public comments prior to the identification of a preferred alternative, the Corps, MDE and FHWA can take public comments into consideration in making their respective decisions.

4. At the conclusion of the FHWA/SHA NEPA process, which concludes with FHWA's issuance of a Record of Decision, the Corps can make its permit decision.

The advantages of this merged process are that it ensures a more meaningful alternatives analysis for aquatic resources; it gives the resource and permitting agencies more opportunity to be involved in shaping the final project to be environmentally sensitive; it allows the various permit and approval actions to be conducted simultaneously with NEPA so that the final NEPA decision will not later need to be revisited due to other agency decisions, approvals, or permits; it provides for public input before agency decisions are made; it eliminates redundancy and duplication in the various agency approval processes that are needed for an SHA project to proceed to construction; it saves time and money; and it results in more informed decision making.

On this ICC project, SHA decided not to use the existing Streamlined Process. The Corps understands that SHA made this decision in an effort to further accelerate the timeline for completing the study, in accordance with the President's Executive Order 13274 *Environmental Stewardship and Transportation Infrastructure Project Reviews* [10]. The Executive Order directs the involved federal agencies to work together to streamline the environmental review of priority transportation projects while minimizing impacts to the environment, and promotes environmental stewardship.[11] The SHA developed a new process, which they called the "Adapted ICC Planning Process" (Encl # 1), that maintained the 4 key features discussed above for merging Section 404 into the requirements of NEPA, but also incorporated the following modifications:

1. Concurrence at the various milestones would be required only from the permit agencies (Corps and MDE). This is not to say that the input of the other agencies was not solicited or considered. To the contrary, the other agencies were given greater influence than under the Streamlined Process, through the implementation of the "Principals Plus One" format.

2. The Principals Plus One (P+1) meeting was a steering committee of high level

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[10] Exec. Order No. 13274, 67 F.R. 59449 (2002).

[11] *Id.*

managers of state and federal government agencies. Each principal could be accompanied to the meeting by at least one staff person (hence the term "plus one"). Each of the principals had direct access, at this forum, to the project proponents, including the SHA Administrator, the Executive Secretary of the Maryland Transportation Authority, the Secretary of the Maryland Department of Transportation, and the Division Administrator of the Federal Highway Administration. These meetings were conducted periodically to ensure that any disagreements among the staff-level study team (called the Interagency Working Group) could be quickly resolved, and to hear the positions of each of the principals at the concurrence milestones. While only the Corps and MDE were requested to provide written concurrences, the views of every state and federal agency were considered in a consensus-building process. Because the meeting provided the opportunity for each agency to appeal directly to, and to influence, the decision makers, this process gave resource agencies, such as the National Park Service (NPS) and the U.S. Fish and Wildlife Service (FWS), a greater voice in the process than they ever had using the Streamlined Process.

3. The opportunity for the Environmental Protection Agency (EPA) and the FWS to elevate the Corps' proposed permit decision, as provided under Section 404 (q) of the Clean Water Act, and a timetable for doing so, was incorporated into the "Adapted ICC Planning Process." Neither EPA nor FWS chose to elevate the Corps' proposed permit decision on this project. The timeframe for initiating the elevation process was established to coincide with the concurrence milestone for the Preferred Alternative and Conceptual Mitigation (PACM). While the Corps would not have formulated a proposed permit decision at this point in the process, this concurrence does serve as the earliest indication by the Corps of the direction that the Corps' permit decision is likely to take. In the interest of streamlining the process (i.e., further reducing the total processing time), the members of the P+1 agreed that the Corps' concurrence in the PACM would constitute an appropriate trigger for initiating the 404(q) elevation process.

4. The Corps' concurrence in the Purpose and Need was requested prior to SHA having completed a traffic analysis. Under the Streamlined Process, a traffic analysis typically would have been completed prior to requesting this concurrence, since a traffic analysis would provide verification of the SHA's statements concerning the severity of the traffic congestion in the design year under the No-Build scenario. We understand this was done to further reduce the total processing time. Nevertheless, upon receipt of this request for concurrence, the Corps advised SHA that SHA was proceeding at their own risk because a subsequent review of new, forthcoming traffic information might necessitate that the Corps revisit their concurrence. As it turned out, the traffic analysis that was finally produced and adopted by FHWA in their NEPA decision did not contain any information that caused the Corps to revisit its earlier concurrence.

When the Streamlined Process was initially developed, the Corps was thoroughly involved in studying the proposed process, and ensured that it satisfied Corps regulations, prior to adopting the process. Because the "Adapted ICC Planning Process" was a new process that had not previously been evaluated by the Corps, the Corps was careful to evaluate each step of

the process, as the study progressed, to ensure that the Corps' regulations were being satisfied. The Corps did not observe any practices that violate either the letter or the spirit of Corps regulations.

B. Scope of Analysis

The Corps' scope of analysis extends to the entire project when there is sufficient federal control over the entire project to make the project a federal action[12]. Federal control may include federal funding, regulation, assistance, or approval. Because there is federal funding in the project and a number of federal approvals are required, the Corps' scope of analysis extends to the entire project.

C. Permit Application

The SHA submitted a joint MDE/Corps permit application dated 1 October 2004 for two Build Alternatives, Corridor 1 and Corridor 2 with numerous options thereof, and the No-Build Alternate. The joint permit application was subsequently revised, dated 8 August 2005, to reflect the proposed aquatic impacts for the Preferred Alternative, Corridor 1. Throughout the Corps' participation on this project, modifications have been made to reduce aquatic impacts. Since the submission of the revised permit application, minor modifications continue to be made to further reduce aquatic and other social, economic, and environmental impacts, resulting in some reductions in the impact quantities. SHA has closely tracked these impact changes throughout the project planning study. Changes will continue to be made, even after permit issuance, as the design/build contractor further refines the design, and constructs the project. Any changes that result in an increase in impact must be approved by permit modification prior to being implemented. It is noted that increases in the project's aquatic impacts are expected to be few because SHA will offer the design/build contractor a financial incentive to reduce the aquatic impacts below the amount authorized in the permit.

D. Corps' Decision-Making Process

The Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material ("Guidelines"),[13] stipulate that no discharge of dredged or fill material into a water of the U.S. (i.e., jurisdictional wetlands and streams) shall be permitted if there is a practicable alternative which would have less adverse impact on the aquatic environment, so long as the alternative does not have other significant adverse environmental consequences.[14] The outcome

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[12] 33 C.F.R. § 325, app. B, para. 8d (referring to 33 C.F.R. § 325, app. B, para 7b) and 33 C.F.R. § 325, app. B, para. 7b(2)(iv)(B).

[13] 40 C.F.R. § 230.10 (2005).

[14] 40 C.F.R. § 230.10(a) (2005). As a point of clarification, the use of the word "significant" in the Guidelines is different from the meaning in NEPA.

of the application of the Guidelines is an alternative known as the Least Environmentally Damaging Practicable Alternative (LEDPA).[15] The determination of the LEDPA is the first of two determinations in the Corps' permitting process, and is discussed in Section III of this Record of Decision. The second determination, which is discussed in Section IV of this document, is whether the LEDPA is in the public interest. The Corps Public Interest Review, described at 33 CFR 320.4, directs the Corps to consider a number of factors in a balancing process. A permit will be granted unless the project is determined to be contrary to the public interest by the District Engineer.[16] In considering both the LEDPA and the Public Interest Review the Corps must consider compliance with other applicable substantive laws such as the Endangered Species Act[17] and the National Historic Preservation Act[18] as well as consult with other Federal Agencies.[19] The Corps also must follow procedural laws such as NEPA, and other laws as described in 33 C.F.R. § 230.4(j)(4).

E. Corps' Concurrence in the Preferred Alternative

The Corps' concurrence at any milestone means that the Corps has reviewed and independently evaluated the information submitted by the project proponents in support of their position, and that the Corps, in consideration of any public and agency comments that have been received, has determined there is sufficient justification to concur. As with any concurrence milestone, the concurring agency is agreeing not to revisit the concurrence unless new or revised information surfaces that was not available at the time of the concurrence, and the new information warrants reconsideration of the concurrence. In addition, after the FHWA and SHA have undertaken considerable time and expense to circulate a FEIS announcing their Preferred Alternative, it would not be good government if the Corps were to wait until that point to announce that the Preferred Alternative is not permittable. Consequently, while the Corps' concurrence in the "Preferred Alternative and Conceptual Mitigation" milestone certainly can be construed as a preliminary indication of how the Corps intends to rule on the permit decision, it does not constitute a permit decision because: (1) the final decision concerning the alternative that FHWA has selected will not be known until FHWA issues a Record of Decision, (2) the Corps must consider any comments received in response to circulation of the FEIS prior to making its permit decision, (3) the complete analysis of the impacts and benefits is not known until the FEIS, public comments, and FHWA Record of Decision are reviewed, and (4) new information could tip the scales in favor of another outcome.

F. Purpose and Need Statement

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[15] *Id.*and *Memorandum of Agreement Between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines,* February 6, 1990.

[16] 33 C.F.R. § 320.4(a)(1) (2005).

[17] 16 U.S.C. §§ 1531-1544 (2005).

[18] 16 U.S.C. § 470f (2005).

[19] *See* The Fish and Wildlife Coordination Act, 16 U.S.C. § 661 (2005).

The Purpose and Need for the proposed Intercounty Connector (ICC) can be found in Chapter I of the FEIS. It has five elements: (1) providing community mobility and safety, (2) the movement of goods and people to and from economic centers, (3) accommodating local land use, (4) environmental stewardship, and (5) homeland security. The Corps concurred in the Purpose and Need Statement by letter dated 12 September 2003.

In keeping with the goal of the President's Executive Order 13274 to promote environmental stewardship, the lead agencies decided to undertake $25 million worth of restoration projects to improve the existing conditions of cultural, community, and natural resources within the ICC study area. These environmental stewardship projects are separate from, and in addition to, the compensatory mitigation projects required by the various state and federal permits. The environmental stewardship projects were identified in Section VI of the FEIS. While the Corps does not object to the lead agencies' desire to restore and enhance already-degraded environmental resources, the Corps is not giving the lead agencies any consideration in the Corps' permit decision for having committed to implement such projects, because it is not necessary for the ICC to be constructed in order for the lead agencies to make this commitment to restore degraded resources. Furthermore, although the Corps' permit does require a suite of mitigation projects to compensate for unavoidable impacts to regulated aquatic resources, it does not include authorization of any impacts to regulated resources that may be required to construct stewardship features. If any stewardship projects are determined, during subsequent design phases, to require Corps authorization, the Corps will evaluate separate permits for these stand-alone projects at that time.

G. Preferred Combination of Options[20]

Each corridor has a number of options from which to choose. There were 4 options along Corridor 1 and 12 options along Corridor 2. In addition, each corridor had the option of including, or eliminating, the interchange at Layhill Road, and each corridor had the option of terminating at I-95 instead of US Route 1. There came a point in the study process where the benefits and detriments of each option were known, and decisions could be made on the preferred combination of options. In a series of meetings with the Interagency Working Group and at the P+1 level, the study team narrowed down the options to the following combination for Corridor 1: Rock Creek C with Olde Mill Run Grade Separation, Northwest Branch Option A with Layhill Road interchange, and the termination at US Route 1. With Corridor 2, the following combination of options were agreed upon by the study team: Rock Creek C with Olde Mill Run Grade Separation, Norbeck A, either Spencerville A or Spencerville B, Burtonsville A, Fairland A, and the termination at US Route 1. (Throughout the text that follows, we identify the reasons for preferring one option over another.) Several weeks after this decision, the FHWA preliminary FEIS was circulated to the study team for review. The preliminary FEIS indicated that FHWA had decided to incorporate Spencerville A (which would displace an entire community along Upland Drive) into their preferred combination of options for Corridor 2, as

[20] To calculate the impacts for an entire corridor from the various tables contained in the FEIS, it is necessary to add the impacts that correspond to the appropriate combination of options.

well as Option X, which is a 4(f) avoidance option for the Free Methodist Church Camp Meeting Ground historic site (that would displace more than half of the Peach Orchard Estates community). The Corps considered Spencerville Option B to be the preferred option through Spencerville. While Spencerville B would displace the Korean Spencerville Seventh Day Adventist Church and Academy, this congregation was already looking for a larger piece of property on which to build, and it was the Corps' understanding that it did not oppose being displaced. In addition, the Corps felt that Spencerville A and Burtonsville X added unnecessarily to the community impacts of Corridor 2. Consequently, the Corps has proceeded with the belief that Spencerville B and Burtonsville A are a less damaging combination of options than Spencerville A and Burtonsville X. The comparison of corridor impacts conducted throughout this record of decision has included this combination of options, in order to consider Corridor 2 in the best possible light. It is noted that the substitution of Spencerville B - Burtonsville A for Spencerville A - Burtonsville X would substantially reduce the disruption to two neighborhoods while having only minimal changes in environmental impacts.[21]

II. Impacts of the Alternatives

This section discusses the existing resources and the impacts associated with the preferred combination of options in Corridor 1 and Corridor 2 (the two ICC 'build' alternatives). This section begins with a discussion of the aquatic resources that are found in each of the watersheds traversed by the ICC alternatives.[22] It then moves to a discussion of the "other significant adverse environmental consequences" associated with each corridor.[23] The Corps finds that there are two primary issues of concern along each corridor, and numerous secondary issues. Corridor 2 has significant concerns associated with impacts to the Rocky Gorge Reservoir and community impacts. Corridor 1 has concerns associated with parklands and a trout stream.

A. Existing Conditions and Impacts

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[21] Wetland and stream impacts would increase by 0.17 acres and 23 linear feet, respectively. *FEIS*, Tbl. IV-65, FIDS habitat impacts would increase by 1.2 acres. *FEIS*, Tbl. IV-74. Forest impacts would be reduced by 5.5 acres. *FEIS*, Tbl. IV-73. Impervious surface would be reduced by 0.6 acres. FEIS, Tbl. IV-55 (revised). Vernal pool impacts would be reduced by 2903 square feet. *FEIS*, Tbl. IV-77. Furthermore, there would be no change in floodplain impact or in the amount of impact to state-protected plant species *FEIS*, Tbl. IV-51 (providing floodplain impact information), and *FEIS*, Tbl. IV-82 (providing plant species impact information).

[22] Discussions of impacts to wetlands reflect all areas meeting the three parameter test contained in the *Corps of Engineers Wetland Delineation Manual*, Tech Rpt. Y-87-1 (1987). Therefore, because the Corps does not regulate some hydrologically isolated wetlands, the totals in this document are slightly higher than those totals in the permit.

[23] 40 C.F.R. § 230.10(a) (2005).

The following is an assessment of the impacts to streams and wetlands, described by watershed. Figure II-F-5 from the Natural Environmental Technical Report depicts the subwatershed boundaries that are traversed by the ICC alternatives and the locations of the stream monitoring stations. The stream ratings discussed below were obtained from the records of the Montgomery County Department of Environmental Protection (MCDEP) and the Maryland Department of Natural Resources (DNR), and are reported in the Natural Environmental Technical Report (NETR) prepared by SHA, which is incorporated herein by reference.[24] Where there were data gaps in the existing MCDEP and DNR stream inventories, SHA's consultants conducted additional water quality monitoring and stream assessments. It bears noting that MCDEP's stream ratings are typically one step higher than the ratings by DNR and SHA because MCDEP is comparing to reference streams within Montgomery County only, whereas DNR and SHA compare to streams statewide, which includes higher quality reference streams in the less-developed regions of the state.

1. Muddy Branch Watershed - Only the uppermost headwaters within the Upper Muddy Branch subwatershed fall within the study area. The MCDEP reports that approximately 26 percent of the watershed is already impervious, with projected development expected to result in imperviousness in the 30 to 55 percent range.[25] Stream quality is greatly affected by this development (most of which was constructed prior to stormwater management regulations), resulting in incised stream channels, bank instability, and poor biological conditions. Aquatic habitat was rated in the 'Good' to 'Fair' range on the MCDEP physical habitat index. [26] The macroinvertebrate community was rated 'Poor.'[27] The MCDEP Fish Index of Biological Integrity (FIBI) rated the headwaters of Muddy Branch 'Poor'.[28] The watershed is designated "Use I - Water Contact Recreation, and Protection of Non-tidal Warmwater Aquatic Life" by Maryland Department of the Environment (MDE), which means it is subject to water quality standards that are designed to protect and maintain water contact recreation and warmwater aquatic species.[29] No wetlands are impacted in this watershed. Corridor 1 and Corridor 2 are identical within this watershed. No streams or wetlands would be impacted, and the ICC would add only 0.1 acre of impervious surface to this watershed.[30]

2. Upper Rock Creek Watershed - This watershed constitutes roughly the upper half of the entire 77 square mile Rock Creek drainage area. Upper Rock Creek watershed supports some of Montgomery County's highest quality stream reaches, but these are in

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[24] *National Environmental Technical Report, I-270 to US*, prepared by the Federal Highway Administration, the Maryland State Highway Administration, and the Maryland Transportation Authority (November 2004) (hereinafter *NETR*).

[25] *NETR*, p. II-66-67.

[26] *NETR*, p. II-202.

[27] *NETR*, p. II-202.

[28] *NETR*, p. II-204.

[29] *NETR*, p. II-154.

[30] *FEIS*, Tbl. IV-55, p. IV-161.(revised).

subwatersheds north of the ICC. Overall imperviousness in this watershed is 6-11 percent.[31] In 2004, the County designated the portion of this watershed above MD Route 115 as the Upper Rock Creek Special Protection Area (SPA). This designation provides additional levels of development review and development restrictions, including an 8 percent cap on imperviousness for new development.[32] Rock Creek above MD Route 115 has an MDE classification of Use III, which means it is subject to water quality standards that are designed to protect and maintain cold water aquatic species, such as wild trout.[33] Although some stocked trout may occasionally be found in this area, a wild trout population does not currently exist.[34] The ICC alternatives are in the portion of the watershed designated as "Use IV - Recreation Trout Waters," which means these waters are subject to water quality standards that are designed to protect and maintain stocked trout.

Several subwatersheds of Upper Rock Creek Watershed are crossed by the ICC alternatives. Crabbs Branch subwatershed is the most urbanized, and exceeded Use IV State water quality standards for temperature and dissolved oxygen.[35] This watershed also exhibited the most elevated readings of conductivity, which is indicative of high levels of dissolved ions, and is usually correlated with salt content[36]. Crabbs Branch was already 26% impervious in 1998, yet revealed 'Good' to 'Excellent' habitat ratings,[37] probably attributable to the fact that a regional stormwater pond had mitigated many of the negative habitat impacts of high imperviousness. Its fish and macroinvertebrate ratings were 'Fair' to 'Poor' however.[38] Mill Creek subwatershed has high imperviousness (20%) and a lack of adequate stormwater management facilities.[39] While it was rated 'Good' for habitat conditions, by MCDEP,[40] it has 'Fair' scores for fish,[41] and 'Poor' for macroinvertebrate communities,[42] possibly due to high nitrate, chloride, and total solids levels. More recent ratings by SHA's consultant rated the habitat 'Poor' to 'Very Poor',[43] and the fish community 'Poor' to 'Very Poor'.[44] South Mill Creek has

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[31] *NETR,* p. II-68.

[32] *NETR,* p. II-68.

[33] *NETR,* p. II-154 and *FEIS,* p. II-65.

[34] *See NETR,* II-74.

[35] *NETR,* pp. II-147, 155-156.

[36] *NETR,* p. II-156.

[37] *NETR,* pp. II-205-206.

[38] *NETR,* p. II-208-209.

[39] *NETR,* p. II-205.

[40] *NETR,* p. II-206.

[41] *NETR,* p. II-209.

[42] *NETR,* p II-208.

[43] *NETR,* p. II-207.

[44] *NETR,* p. II-210.

overall 'Fair' stream conditions and bank stability problems.[45] The fish population is better in this portion of Mill Creek, which is perhaps reflective of the lower imperviousness (12%).[46] The Mill Creek monitoring sites had the highest nitrate, chloride, phosphorus, and total solids levels of all the monitoring sites in the Upper Rock Creek Watershed.[47] Crabbs Branch and Mill Creek contribute to elevated nutrient levels and fecal coliform contamination.[48] Two stream monitoring stations in the Rock Creek subwatershed showed ammonia, nitrate, phosphorus, chloride, and total solids at very high levels.[49] SHA recently rated the fish community 'Fair' at the monitoring station RC-01 near Lake Needwood, noting that the site is impaired by backwater effects of the lake, which causes sediment to drop out of suspension.[50] The Lake Needwood subwatershed is dominated by a 74-acre man-made lake constructed for flood control and recreation. Very little information was reported for this subwatershed. The highest quality wetlands in the Upper Rock Creek Watershed are located in the floodplain of Rock Creek, between the alignments of Rock Creek A and Needwood Road.

From the MD 355 interchange to just west of Redland Road, both Corridors share the same alignment. Between Redland Road and the watershed boundary at Muncaster Mill Road, there are two possible alignments under consideration by the Corps, Rock Creek Option A and Rock Creek Option C (with grade separation). The total impact to aquatic resources in the Upper Rock Creek watershed with Rock Creek Option A would be 6950 linear feet of stream, 4.16 acres of wetlands, 12.9 acres of floodplain, and 59.2 acres of additional impervious surface.[51] The total impact in the watershed with Rock Creek Option C would be 7520 linear feet of stream, 3.89 acres of wetlands, 8.9 acres of floodplain, and 64.4 acres of additional impervious surface.[52]

3. The North Branch of Rock Creek Watershed consists of approximately one quarter of the entire Rock Creek drainage basin in Montgomery County. North Branch Rock Creek flows into Lake Frank, a man-made in-stream impoundment constructed during the 1960's for flood control. The portion of this watershed that is west of the Creek is considered part of the Upper Rock Creek Special Protection Area. The ICC alignment is in the portion of the watershed that is above MD Route 115, which is designated "Use III - Non-tidal Cold Water" by MDE[53]. The stream does not contain a wild trout population.

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[45] *NETR*, p. II-90.

[46] *NETR* p. II-90.

[47] *NETR*, p. II-157.

[48] *NETR*, p. II-155.

[49] *NETR*, Tbl. II-F-37, pp. 157-158.

[50] *NETR*, p. II-209.

[51] *FEIS*, pp. IV-144, 161 (revised) and 210.

[52] *Id.*

[53] *NETR*, p. II-154.

Throughout the North Branch, dissolved oxygen levels were generally high, and temperatures are generally below the 68 degree Use III standard.[54] Just upstream of the ICC crossing, SHA sampling revealed that nitrates, phosphorous, total solids, and chlorides were all above State standards.[55] The Lower North Branch B subwatershed and the Brooke Manor subwatershed are crossed by the ICC. There was no existing monitoring data for these tributaries. However, the stream habitat conditions of the mainstem are 'Good' to 'Fair' at the monitoring station that was upstream of the ICC, and 'Fair' to 'Excellent' at the monitoring stations downstream of the ICC near Muncaster Mill Road, where bedrock outcrops and seeps help maintain habitat conditions.[56] Ratings of the fish community are highly variable throughout the North Branch of Rock Creek, and no clear trend is apparent from the headwaters to the mouth. At one of the monitoring stations just upstream of Muncaster Mill Road (where Cherrywood Manor Tributary enters North Branch Rock Creek), the macroinvertebrate and fish community was rated 'Excellent'.[57] The State-threatened comely shiner has been reported in these waters.[58] Valuable wetland complexes exist on the east side of the floodplain of North Branch of Rock Creek and along the Brooke Manor Tributary. A population of the State-endangered trailing stitchwort exists in the wetlands.[59] Both alternatives follow a common alignment through this watershed. The impacts would amount to 2578 linear feet of stream, 1.63 acres of wetland, 9.4 acres of floodplain, and 39.9 acres of impervious surface.[60]

4. Northwest Branch is the largest of Montgomery County's contributing watersheds to the Anacostia River. It is 42 square miles and approximately 17 percent impervious in Montgomery County.[61] The upper reaches of the watershed are in transition from agriculture to suburban land use. Development densities increase as the stream moves southward. The watershed has an MDE stream classification of "Use IV - Recreational Trout Waters," but the water temperatures exceed Use IV standards for a portion of the summer.[62] The State-threatened comely shiner has been documented in the Northwest Branch watershed.[63]

Corridor 2 would traverse the Batchelors Forest Tributary subwatershed, Batchellor's Forest East subwatershed, Upper Mainstem subwatershed, and Bryants Nursery Tributary subwatershed. Batchelors Forest subwatershed had elevated levels of phosphorous, chlorides,

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[54] *NETR,* Tbl. II-F-39, p. II-160.

[55] *NETR*, Tbl. II-F-41, p. II-160.

[56] *NETR*, Tbl. II-G-16, pp. II-210-211.

[57] *NETR*, Tbls. II-G-17 and II-G-18, pp. II-212-213.

[58] *FEIS,* p. IV-291.

[59] *FEIS,* p. IV-289.

[60] *FEIS*, pp. IV-144, 161 (revised) and 210.

[61] *NETR*, p. II-69.

[62] *NETR*, p. II-163.

[63] *FEIS,* p. IV-291.

and total solids.[64] This subwatershed had the coolest temperatures in the Northwest Branch watershed.[65] The only available data on imperviousness is from 1998, at which time the watershed was only 7% impervious.[66] It is rated by MCDEP as 'Good' to 'Fair' for habitat due to unstable banks and sediment deposits, 'Poor' by SHA but 'Fair' by DNR for macroinvertebrates, and 'Fair' by SHA but 'Good' by DNR for fish.[67] Batchelors Forest East (6% impervious) had an overall stream rating of 'Poor.'[68] The Upper Mainstem (7% impervious),[69] was in 'Excellent' condition overall,[70] with habitat and macroinvertebrates being rated 'Good' to 'Excellent' by MCDEP but fish being rated 'Fair' to 'Good'.[71] The Bryant's Nursery Tributary subwatershed has the best overall conditions for aquatic biota (7% impervious) where habitat, macroinvertebrates, and fish have consistently been rated as 'Good' or 'Excellent' by MCDEP since 1996.[72] It has an overall stream rating of 'Excellent'.[73]

Corridor 1 would traverse Longmeade Tributary subwatershed, Middle Mainstem Glenmont subwatershed, and Rolling Stone Tributary subwatershed. The Longmeade Tributary (17% impervious) was rated by MCDEP 'Fair' overall, with ratings of'Fair' to 'Good' for habitat,[74] 'Poor' to 'Fair' for macroinvertebrates,[75] and 'Poor' for fish.[76] Longmeade Tributary had elevated levels of phosphorous, chlorides, and total solids.[77] The Middle Mainstem Glenmont portion of the watershed (12% impervious) varied from station to station[78]. The majority of the ratings of macroinvertebrate communities were lower ('Poor' to 'Good') than the ratings of habitat and fish communities ('Fair' to 'Good'), as impacts from bank instability and sedimentation limit the quality of benthic habitat to a greater extent than fish habitat[79]. This subwatershed is in 'Fair' condition overall.[80] The Middle Mainstem of Northwest Branch suffers

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[64] *NETR,* Tbl. II-F-45, p. II-163, p. II-181.

[65] *NETR*, p. II-163.

[66] *NETR*, p. II-105.

[67] *NETR*, pp. II-214-219.

[68] *NETR*, p. II-102.

[69] *NETR*, p. II-103.

[70] *Id.*

[71] *NETR*, pp. II-215-218.

[72] *NETR*, pp. II-102 and 213.

[73] *NETR*, p. II-102.

[74] *NETR*, p. II-215.

[75] *NETR*, p. II-216.

[76] *NETR*, p. II-218.

[77] *NETR*, p. II-163.

[78] *NETR*, p. II-103.

[79] *NETR*, pp. II-215-218.

[80] *NETR*, p. II-103.

from greater water quality impacts than many of its tributaries, with low dissolved oxygen, elevated temperatures, and elevated levels of nitrates, phosphorus, chlorides, and total solids,[81] but was rated 'Fair' overall.[82] The Rolling Stone Tributary (15% impervious),[83] was rated 'Fair' to 'Good' for habitat, and 'Poor' to 'Good' for macroinvertebrates, and 'Poor' for fish community by MCDEP.[84] It has elevated levels of nitrates, phosphorous, chlorides, and total solids.[85]

The above ratings established by MCDEP, DNR, and SHA show that Corridor 2 impacts higher quality streams than Corridor 1 in Northwest Branch watershed.

In this watershed, the size of the wetland systems traversed by the two highway alternatives varies in proportion to the size of the floodplains. The floodplain and wetlands are much broader downstream on the mainstem, than upstream on the mainstem or along the tributaries. However, with the alignment shift to Northwest Branch Option A, the wetland impacts of Corridor 1 are substantially reduced. For reasons that will be outlined below, the Corps and the study team have narrowed the consideration of alternatives through this watershed to Corridor 1 with Northwest Branch Option A and Corridor 2 with Norbeck Option A. Corridor 1 would impact 3.95 acres of wetlands versus 4.1 with Corridor 2. Corridor 1 would impact fewer acres of floodplain (5.8 vs. 13.1) but more linear feet of stream (10,351 vs. 5861) and add more acres of impervious surface (94.6 vs. 79) to the watershed.[86]

5. The Paint Branch Watershed is 21 square miles in size and 18 percent impervious in Montgomery County.[87] The Paint Branch is one of the least intensely developed watersheds in the Anacostia basin. It supports the only wild brown trout population in the Washington, D.C., metropolitan area.[88] The watershed has an MDE stream classification of "Use III - Non-tidal Cold Water."[89] In 1995, Montgomery County designated the watershed of the headwaters above Fairland Road as a Special Protection Area (SPA), with a requirement that new development have no more than 10% imperviousness.[90] In the SPA, large areas of County-owned, forested parkland serve to protect the riparian area and to keep the imperviousness relatively low.

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[81] *NETR*, pp. II-161-163.

[82] *NETR*, p. II-103.

[83] *Id.*

[84] *NETR*, pp. II-215-218.

[85] *NETR*, p. II-163.

[86] *FEIS*, pp. IV-144-146, 161 (revised) and 210.

[87] *NETR*, p. II-70.

[88] *Id.*

[89] *NETR*, p. II-154.

[90] *NETR*, pp. II-70-71.

Overall, Paint Branch watershed shows the highest levels of metals of all the study area watersheds, although the levels were well below State criteria.[91] The tributaries consistently demonstrate low pH values, and are more acidic than the rest of the study area watersheds, at levels that fail to meet Use III criteria.[92] The Natural Environment Technical Report indicates that lower pH values may contribute to the availability and concentrations of metals.[93] However, the Montgomery County Department of Public Works and Transportation (MCDPW&T) Maintenance Depot may also be contributing metals, at least in the Good Hope Tributary, because metals would be expected to be common in runoff from vehicular maintenance facilities.[94] Water quality was slightly more degraded in the mainstem of Paint Branch than in the tributaries. At SHA monitoring stations on the Good Hope, Gum Springs, and Upper Mainstem, elevated levels of phosphorous, chlorides, and total solids were detected.[95] Overall, water temperatures within Paint Branch and its headwater tributaries are often above the State standard of 68 degrees Fahrenheit.[96] Relatively higher temperatures were seen in 2002, most likely due to extreme drought conditions. The Good Hope Tributary consistently displays the lowest temperatures, followed by the Gum Springs and Right Fork Tributaries.[97]

The upper portion of the Paint Branch Watershed has some of the best overall aquatic conditions in the ICC study area. The majority of tributary streams in the watershed are rated as 'Good' or 'Excellent' by MCDEP for their combination of high quality aquatic habitat, and diverse and pollution-intolerant macroinvertebrate and fish communities. The aquatic habitat is rated 'Good' to 'Excellent' by MCDEP in all the subwatersheds traversed by ICC alternatives except the Left Fork.[98] Also, the upper Good Hope Tributary is showing signs of impairment, i.e., bank instability and sediment deposition. The macroinvertebrates are rated by MCDEP as 'Fair' to 'Excellent' in these subwatersheds except in the Left Fork which is rated 'Poor' to 'Good.'[99] Fish communities are rated 'Fair' to 'Excellent' by MCDEP in all the subwatersheds traversed by the ICC.[100] The fish community in the Upper Left Fork is rated 'Fair' in most years, with conditions improving to 'Excellent' in the downstream reaches. The Right Fork has a 'Good' to 'Excellent' fish community, with the best conditions being present in the middle portion of the tributary. Gum Springs Tributary has a 'Fair' headwaters community and an 'Excellent' downstream community.[101] A number of the subwatersheds have relatively high

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[91] *NETR*, p. II-164.

[92] *Id.*

[93] *Id.*

[94] *FEIS, Tbl.* IV-57, p. IV-174.

[95] *NETR*, p. II-166.

[96] *NETR*, p. II-168.

[97] *Id.*

[98] *NETR*, Tbl. II-G-25, p. II-221.

[99] *NETR*, Tbl. II-G-26, p. II-222.

[100] *NETR*, Tbl. II-G-27, p. II-223.

[101] *NETR*, p. II-223.

impervious percentages, but still support high quality aquatic communities.[102] The best overall conditions are found in the Good Hope (10.4% impervious in 2001), particularly the lower section, with the lower Gum Springs and Right Fork Tributaries only slightly more impaired.[103] The Gum Springs Tributary (15.6% impervious in 2001) has very high quality, particularly in the lower reaches.[104] The upper reaches are more impaired, but have improved greatly since 1994-1997 when pollutant loads and lack of habitat for fish resulted in a 'Poor' fish community. The Upper Left Fork (13.1% impervious in 2001) has an overall rating of 'Fair'.[105] The Upper Mainstem (12.9% impervious in 2001) has overall 'Good' stream conditions.[106] The Right Fork (11.5% impervious in 2001) has an overall rating of 'Excellent'.[107]

It can be seen from the data that the uppermost reaches of these tributaries, which are traversed by Corridor 2, are lower quality than the reaches traversed by Corridor 1.

For reasons outlined below, the Corps has narrowed the consideration of alternatives in this watershed to Corridor 1 and Corridor 2 with Spencerville Option B and Burtonsville Option A. Corridor 2 would impact only 636 linear feet of stream compared to 1565 linear feet for Corridor 1.[108]

The wetlands associated with these tributaries are not as broad as in the previously-discussed watersheds. The majority of the wetlands found within Corridor 1 are in the floodplain of Paint Branch, near its confluence with both Gum Springs and Good Hope Tributary. These spring seep wetlands are of high quality due to their position within the undeveloped stream valley parks, and the contribution that they play in maintaining water quality, lower temperatures, and a stable base flow. The seep wetlands in Corridor 2 provide the same functions, are of high quality, and are more extensive than in Corridor 1. They provide important riparian and water quality buffers in an area where the upper reaches of the headwaters are not protected by parklands. Also, a population of State-threatened featherbells lies to the south of the Spencerville options of Corridor 2. The wetland impacts of the two alternatives are comparable, 1.45 acres for Corridor 1 and 1.12 acres for Corridor 2.[109] Through bridging, all of the floodplain impact is avoided on Corridor 1, while Corridor 2 would impact only 1.4 acres of floodplain.[110]

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[102] *NETR*, p. II-219.

[103] *Id.*

[104] *NETR*, p. II-220.

[105] *NETR*, p. II-110.

[106] *NETR*, p. II-111.

[107] *NETR*, p. II-110.

[108] *FEIS*, pp. IV-210-212.

[109] *Id.*

[110] Plates showing no fill in Corridor 1 floodplains found in *FEIS*, Vol. II, App. A, Plates 25-27. Plates showing 1.4 acres of fill in Corridor 2 floodplains found in *FEIS*, Vol. II, App. A, Plate 69.

Corridor 1 would add more impervious surface to the watershed than Corridor 2 (39.2 acres vs. 28.9).[111]

6. The Little Paint Branch Watershed is 10.5 square miles in size and approximately 19 percent impervious in Montgomery County.[112] The least developed portions of the watershed occur in the upper reaches above Greencastle Road, and better stream conditions reflect this. The forest tracts are located predominantly in the upper half of the watershed, with the largest forested area in the Fairland Regional Park. The upper portions remain in good condition and still provide habitat necessary to support healthy communities of aquatic insects and fish. Conditions decline rapidly downstream due to intense development that pre-dated stormwater management regulations. MDE has given the stream a classification of "Use I - Water Contact Recreation, and Protection of Non-tidal Warmwater Aquatic Life."[113] The State-threatened comely shiner has been documented in these waters.[114]

The stream in Tanglewood subwatershed was rated 'Fair' overall by MCDEP and 'Very Poor' by SHA, while Greencastle and Upper Mainstem subwatersheds were rated 'Fair' overall.[115] The Tanglewood Tributary was rated 'Good' by MCDEP but 'Very Poor' by SHA for habitat, 'Poor' by MCDEP and 'Very Poor' by SHA for macroinvertebrates, and 'Fair' to 'Good' by MCDEP and 'Very Poor' by SHA for fish community.[116] SHA's data was collected in 2003 to supplement MCDEP's 1996 data. The stream exhibits bank erosion, an over-widened channel, and sediment deposition, suggesting that the stream receives a substantial quantity of runoff from the impervious surfaces in the urbanized watershed. The Greencastle Tributary was rated 'Good' to 'Excellent' for habitat by MCDEP and 'Good' by SHA, 'Poor' to 'Good' by MCDEP and 'Fair' by SHA, for macroinvertebrates, and 'Fair' for fish community by both MCDEP and SHA.[117] The Upper Mainstem subwatershed was rated 'Fair' by MCDEP for macroinvertebrates and 'Good' for fish community.[118] The Tanglewood and Greencastle tributaries had elevated levels of phosphorous, total solids, and chlorides. Tanglewood also had elevated levels of nitrates and fecal coliforms.[119]

The best wetlands are those which are in the floodplain of the Corridor 1 crossing of Little Paint Branch, and the large forested wetland complex behind Tubby's Restaurant, that is crossed by Corridor 2, Fairland Options A and B. Beneath, and in the vicinity of, the power line

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[111] *FEIS*, pp. IV-161-162 (revised).

[112] *NETR*, p. II-71.

[113] *NETR*, p. II-154.

[114] *FEIS*, p. IV-80.

[115] *NETR*, pp. II-234-239.

[116] *NETR*, pp. II-235-239.

[117] *Id.*

[118] *NETR*, pp. II-237-238.

[119] *NETR*, Tbl. II-F-57, p. II-169-170.

right-of-way that bisects the large wetland behind Tubby's Restaurant is a known population of the State-threatened halberd-leaved greenbrier, and a bog wetland known as McKnew Bog, which has been proposed for listing by DNR as a Wetland of Special State Concern.[120]

For reasons outlined below, the Corps has narrowed its consideration of alternatives in this watershed to Corridor 2 with Fairland Option A, and Corridor 1. The impacts of Corridor 1 amount to 10,118 linear feet of stream, 3.62 acres of wetlands, 55.7 acres of impervious surface, and 1.6 acres of floodplain. The impacts of Corridor 2 (with Fairland Option A) amount to 3115 linear feet of stream, 2.16 acres of wetlands, and 12.9 acres of impervious surface and 0.1 acre of floodplain.[121]

7. The Indian Creek Watershed is 15.5 square miles in size and is approximately 20 percent impervious in Prince George's County.[122] MDE has given the stream a classification of "Use I - Water Contact Recreation, and Protection of Non-tidal Warmwater Aquatic Life."[123] Above Virginia Manor-Ammondate Road, the watershed is dominated by abandoned sand and gravel mining and forest cover, much of which is classified as scrub/shrub (regenerating). The mining has contributed large amounts of sediment to the watershed. In the lower, highly urbanized portion of the watershed, long reaches of the stream have been channelized and have inadequate riparian buffers. Overall, aquatic conditions in the Indian Creek watershed are 'Poor.'[124] The Mainstem above I-95, Upper Mainstem, and Ammendale Tributary watersheds have 'Poor' to 'Fair' habitat conditions, but biological communities in the 'Very Poor' to 'Poor' range.[125] These areas have relatively low imperviousness, but are heavily impacted by past mining activity leading to severe streambed instability and sedimentation. Habitat conditions improve to 'Fair' to 'Good' in the Middle Mainstem where mature riparian areas exist, allowing for an improved fish community, but continued streambed instability and flashy flows limit benthic communities. SHA sampling of the mainstem below I-95 revealed elevated levels of phosphorous, total solids, chlorides, and fecal coliforms.[126]

The primary wetlands in this watershed are associated with mining. Abandoned in-stream wash ponds at the Laurel Sand and Gravel mining operation, in the vicinity of where both corridors cross I-95, comprise a large component of the landscape. These in-stream wash ponds were created to trap and treat the effluent from the gravel washing operation, and were created prior to the Corps' 404 permit program. As each pond filled with sediment, a new impoundment was constructed to create a new wash pond. Consequently, the mainstem above I-95 has numerous impoundments, all of which are now mostly silted-in and vegetated with a monotypic

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[120] *NETR*, p. II-267.

[121] *FEIS*, pp. IV-146, 161-162 (revised), and 210-213.

[122] *NETR*, p. II-72.

[123] *NETR*, p. II-154.

[124] *NETR*, p. II-239.

[125] *Id.*

[126] *NETR*, Tbl. II-F-61, p. II-171.

stand of Phragmites. They no longer have any meaningful sediment retention capacity or flood storage capacity, and their wildlife value is low. Just downstream of the last wash pond is a large wetland complex along the base of the I-95 embankment known as Aitcheson Bog. This system is floristically diverse and is proposed by DNR for listing as a Wetland of Special State Concern. It contains a population of the halberd-leaved greenbrier, a State-threatened plant, but the project will not impact this population. A 2000-foot retaining wall is proposed to minimize, but not totally avoid, the encroachment into this wetland and the associated floodplain of Indian Creek. On the east side of I-95, numerous depressions and ponds were created incidental to mining. With the exception of the beaver-influenced wetland along the Ammendale Tributary, which contains a population of State-endangered rough-leaved aster and State-threatened featherbells, the majority of the wetlands associated with mining on the east side of I-95 are not jurisdictional wetlands. The Corps encouraged SHA to shift the alignment to cross this wetland at its narrowest point, thereby avoiding the areas with the State-listed plants, and to purchase a 19.9-acre conservation easement including the wetland and a 100-foot buffer around this wetland to permanently protect the plants from future development.

Impacts of Corridor 1 amount to 11,666 linear feet of stream, 32.85 acres of wetlands, and 83.7 acres of impervious surface.[127] Impacts of Corridor 2 amount to 12,776 linear feet of stream, 35.45 acres of wetlands, and 105.9 acres of impervious surface.[128]

8. The Rocky Gorge Watershed is one of five subwatersheds draining to the Patuxent River, which altogether encompass 132 square miles (85,000 acres) above the water intake at the T. Howard Duckett Dam.[129] The Rocky Gorge Watershed consists of 16,722 acres in Montgomery and Howard Counties, or about 20 % of the drainage area to the water intake. The Montgomery County portion of Rocky Gorge Watershed is approximately 11% of the total drainage area and is 9.4 percent impervious.[130] A small portion of the watershed is managed by the Washington Suburban Sanitary Commission (WSSC), which provides drinking water to Montgomery and Prince George's County residents. The Patuxent Water Filtration Plant on Rocky Gorge Reservoir provides the primary source of drinking water to between 550,000 to 650,000 people.[131] MDE has given the watershed a classification of "Use I-P - Water Contact Recreation, Protection of Aquatic Life, and Public Water Supply."[132]

The reservoir has historically been listed as impaired for nutrients. Excess nutrients are contributed by failing septic systems and runoff from agricultural lands (which comprise 40% of the 85,000 acre watershed draining to the reservoir). SHA monitoring in the tributaries crossed

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[127] *FEIS*, p. IV-161-162 (revised) and 210-213.

[128] *Id.*

[129] *NETR*, p. II-185.

[130] *NETR*, p. II-73.

[131] *FEIS*, p. II-68 and Maryland Department of the Environment, *Source Water Assessment for Washington Suburban Sanitary Commission Patuxent Water Filtration Plant* (June 2004).

[132] *NETR*, p. II-154.

by the ICC alternatives revealed elevated levels of nitrates, phosphorous, total solids, and chlorides.[133] The streams affected by the ICC alternatives have overall ratings of 'Fair' due to bank erosion and sedimentation, and a lack of riparian vegetation.[134] Except for the Dustin Road Tributary which was rated 'Poor', habitat in these streams was rated as 'Good' to 'Excellent' by MCDEP, but only 'Fair' to 'Good' by SHA, macroinvertebrates were rated as 'Good' to 'Excellent' by MCDEP (except for the Dustin Road Tributary which was rated 'Fair') but 'Fair' by SHA, and fish communities were rated 'Poor' to 'Fair' due to man-made fish blockages and very small drainage areas.[135]

For reasons discussed below, the study team preferred, and the Corps concurred, that Burtonsville Option A is the preferred alternative over Burtonsville Option B for Corridor 2 in this watershed. Wetland impacts would amount to 2.16 acres and floodplain impacts would amount to 2.4 acres associated with the crossings of two forks of the Kruhm Road Tributary.[136] Stream impacts would amount to 7510 linear feet and approximately 52 acres of impervious surface would be added to the watershed.[137]

B. Impacts to the Rocky Gorge Reservoir

The Rocky Gorge Reservoir is created by a dam constructed across the Patuxent River just west of I-95, which is visible from the southbound lanes of I-95. In combination with the Triadelphia Reservoir further upstream, the Rocky Gorge Reservoir provides the primary source of drinking water to between 550,000 to 650,000 people.[138] Although forested buffers owned by Washington Suburban Sanitary Commission (WSSC) protect land immediately surrounding the reservoir, the majority of the reservoir's tributary streams originate on unprotected private and public lands. Impacts to water quality and stream stability in these tributary watersheds are eventually delivered to the reservoir in the form of excess sediment, nutrients, and other contaminants. The reservoir is currently experiencing excessive nutrient loading from agricultural runoff and growing suburban development. In 1996, the reservoir was listed as mesotrophic - eutrophic, indicative of moderate to high enrichment by nutrients, primarily nitrogen and phosphorus, which lead to moderate to excessive algae growth.[139] Overall trends have been toward increasing levels of eutrophication, which leads to low dissolved oxygen (DO) levels on a regular basis during summer months in the lower portions of the reservoir. Low DO levels are problematic because they allow for a higher solubility or release of manganese, iron, phosphorus, and other soluble ions, which can cause an increase in turbidity and algae, and affect odor and taste of the drinking water. This, in turn, increases water treatment costs. MDE's

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[133] *NETR*, Tbl. II-F-64, p. II-173.

[134] *NETR*, p. II-242.

[135] *NETR*, pp. II-243-245.

[136] *FEIS*, pp. IV-146 and 210.

[137] *FEIS*, pp. IV-161 (revised) and 210.

[138] *FEIS*, p. II-68.

[139] *FEIS*, pp. II-69-70.

Source Water Assessment for Washington Suburban Sanitary Commission Patuxent Water Filtration Plant,[140] dated June, 2004, indicates the Rocky Gorge Reservoir's contaminants of concern are sediment, protozoans (Cryptosporidium and Giardia) associated with fecal contamination, phosphorous, and precursors of disinfection by-products (DBPs). DBPs are formed when certain disinfectants, such as chlorine and other chemicals commonly used to treat drinking water, interact with organic materials in source waters (e.g., humic acid and fulvine acid, which are formed during the decomposition of organic matter, such as algae), to produce trihalomethanes and haloacetic acids. Health evidence collected by EPA has linked DBP's to certain forms of cancer, and exposure to chlorinated drinking water to reproductive and developmental problems.[141] Salts and heavy metals are not currently causing water quality concerns in the reservoir, but levels of both could be elevated by construction of an ICC alternative in this watershed.

The Burtonsville B Option of Corridor 2 lies in close proximity to the Rocky Gorge Reservoir. Due to the existing rolling topography, extremely large cuts and fills would be required to construct Burtonsville B within the Rocky Gorge watershed. The extensive earthwork that would be required increases the potential for releases of sediment into the reservoir during construction. The proximity of the reservoir to Burtonsville B decreases the width of forest buffer that would remain between the reservoir and the highway, and adds from 70.5 acres to 81.4 acres of impervious surface (depending upon which Spencerville Option it is paired with) to the watershed.[142] In addition, the Burtonsville B Option impacts the Oursler Road Biodiversity Area, and has Section 4(f) impacts to the Patuxent River Watershed Conservation Park (12.9 acres) and T. Howard Duckett Watershed Property (2.6 acres).[143] Burtonsville B is also very near the Batson Road community, a long-established African American community that has voiced their concerns about proximity impacts. For all these reasons, the Corps is amenable to dropping this option from further consideration. Because any version of ICC Corridor 2 which incorporates the Spencerville D Option would, of necessity, incorporate the Burtonsville B Option, the Corps' decision to drop Burtonsville B from further consideration means that Spencerville D would also be dropped.

The Burtonsville A Option of Corridor 2 would result in the following impacts within the watershed of Rocky Gorge Reservoir. The direct impacts of the highway would result in the clearing of approximately 34.6 acres of forest (most of it mature forest), of which 3.1 acres is interior forest.[144] Another 2.4 acres of interior forest would be converted to edge habitat.[145]

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[140] Maryland Department of the Environment, *Source Water Assessment for Washington Suburban Sanitary Commission Patuxent Water Filtration Plant* (June 2004).

[141] Environmental Protection Agency, *Proposed Stage 2 Disinfectants and Disinfection Byproducts Rule Fact Sheet,* EPA 815-F-03-006 (July 1999).

[142] *FEIS,* pp. IV-161-162 (revised).

[143] *FEIS,* Tbl. V-15, p. V-101.

[144] Scaled from *FEIS,* Vol. 2, Fig. II-17, Sheet 5 of 10.

[145] *FEIS,* p. IV-262.

Burtonsville A would result in the filling of 7510 linear feet of streams and 2.16 acres of wetlands in the Rocky Gorge watershed.[146] While the fish communities in the subwatersheds crossed by Burtonsville A are considered poor (due primarily to the small size of the streams), the macroinvertebrate community is relatively high quality, indicating good water quality.[147] The high water quality of the tributaries is likely attributable to the large amount of forest cover. There would be a 52-acre increase in impervious surface in the Rocky Gorge watershed if the ICC were constructed to incorporate Burtonsville Option A.[148] Increasing the percentage of impervious surface generally results in less infiltration and greater runoff of rainwater. The increased runoff could exacerbate erosion of the tributary streams and impact the water quality and biological productivity of the tributaries.[149] There are no Federally-listed or State-listed populations of rare, threatened, or endangered species, and no ecologically sensitive seeps or bogs in the path of Burtonsville A within Rocky Gorge watershed. No Special Protection Areas, Biodiversity Areas, or Best Natural Areas would be impacted by Burtonsville A within Rocky Gorge watershed. No areas designated by DNR as Green Infrastructure hubs or corridors would be impacted. Box culverts that could accommodate deer passage are proposed at tributaries to the reservoir (Station 795 and 819), in order to avoid interrupting any existing wildlife movement along the tributaries.

The possibility exists for hazardous chemical spills to occur along the ICC. Hazardous material spills generally are low-probability events, but are understood to have potentially high consequences in terms of human health, response and clean-up costs, water treatment plant contamination, and interruption of water supply.[150] Contaminants from hazardous materials that entered the reservoir would be held within the impoundment for a long time, as natural flushing is greatly limited due to the small volume of water that is released from the lake. The consequence is that the reservoir could become unsuitable for water supply for a period of time.[151] This would pose a significant challenge for WSSC in terms of satisfying the regional demands for water. Therefore, containment of accidental spills is particularly important in the Rocky Gorge watershed. SHA could size the stormwater management ponds to contain an accidental spill from a 10,000 gallon tanker truck in addition to the runoff from a one-year storm event. Structural controls could include emergency shutoff valves on detention ponds, operable by emergency response teams. In addition, procedural measures are well developed for spill control responses at both the State and County levels. However, instantaneous containment of spills is not possible due to the lag time between the occurrence of the spill and the arrival of hazmat response teams.[152]

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[146] *FEIS*, p. IV-210.

[147] *NETR*, pp. II-244-245.

[148] *FEIS*, p. IV-161 (revised).

[149] *See* Barnes, Morgan, and Roberge, *Impervious Surfaces and the Quality of Natural and Built Environments,* Towson University (2001).

[150] *FEIS*, p. IV -189.

[151] Comments of WSSC.

[152] *FEIS*, pp. IV-190-191.

According to projections of development by the Expert Land Use Panel (ELUP), the most significant difference between Corridor 1 and Corridor 2, in terms of secondary development, would occur in the Burtonsville Traffic Analysis District (TAD), which is contained within the Rocky Gorge watershed. For the years 2010 through 2030, the ELUP projected 292 acres of additional secondary development (i.e., in addition to that which was projected for the No-Build scenario) in the Burtonsville TAD with the construction of Corridor 1, compared to 685 acres with Corridor 2.[153] Also, the Laytonsville TAD could contribute another 61 acres of secondary development in the Rocky Gorge watershed with the construction of Corridor 1, compared to 112 acres with Corridor 2.[154] Together, these two TADs would account for roughly 350 acres of projected secondary development in the Rocky Gorge watershed with Corridor 1 and almost 800 acres for Corridor 2, a difference of 450 acres. These projections assume that zoning changes would be approved to allow this level of development. A change in the location of a major planned highway such as the ICC would necessitate that previous zoning decisions be revisited. The "Change Or Mistake Rule" allows owners of developable property to petition for a zoning change when there is a mistake in the existing zoning, or a substantial change in the character of the neighborhood has occurred, such as the construction of a major new highway.[155] Although there is some debate among MNCPPC personnel regarding whether developers would prevail in these zoning changes, it is extremely likely that there would be increased pressure to re-zone many parcels to a higher density. It is also likely that lawsuits or threats of legal challenges by developers invoking the Change Or Mistake Rule would enable some rezoning requests to prevail. The possibility of higher density development is seen as a threat to the water quality of the Rocky Gorge Reservoir, which is a watershed that MNCPPC has deliberately zoned low-density (one home per five acres) to help protect the reservoir. While the Corps does not disagree that additional development could inevitably compromise water quality, it is important to note the findings of the SCEA indicate that even without an ICC there are 4,551 acres of development expected to be constructed in the Rocky Gorge watershed before year 2010.[156] Consequently, the approximately 450-acre difference in secondary development potential, in years 2010 to 2030, between Corridor 1 and Corridor 2 pales in comparison to the damage that will already have been done by the 4,551 acres of near-term development. While the DEIS notes that all of the additional 450 acres of secondary development that would result with Corridor 2, as compared to Corridor 1, are outside the Priority Funding Area (which is the area where adequate public infrastructure such as water and sewer already exists), it should be noted that the 4,551 acres of projected near-term development is also outside the Priority Funding Area. Consequently, while the 450 acres of secondary development will put a burden on the local infrastructure, it doesn't compare to the burden that will be generated by the 4,551 acres of near-term development.

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[153] *See Secondary and Cumulative Effects Analysis Technical Memorandum,* prepared by the Federal Highway Administration, the Maryland State Highway Administration, and the Maryland Transportation Authority, (November 2004). (hereinafter *SCEA*) *at* p. 11 and App. 7.

[154] *SCEA,* App. 7.

[155] *FEIS*, p. IV-96.

[156] *SCEA*, p. 201, fig. 16, sheet 2 of 2.

C. Impact to Communities

SHA conducted an extensive community impact assessment for each of the communities affected by an ICC alternative. The communities affected by Corridor 2 were of particular concern because, contrary to communities on Corridor 1 who had actual or constructive knowledge that the Montgomery County Master Plan proposed an ICC near their homes, these Corridor 2 communities were not established with the knowledge that an ICC corridor would be developed in their proximity. Consequently, no right-of-way has been reserved for an ICC Corridor 2. The right-of-way for Corridor 2 would result in displacements of residences along the periphery of many communities. In addition, Corridor 2 would change the existing access to many communities from the local road network, thereby affecting the length of travel for people making local, everyday trips such as to school, to market, and to after-school activities. In addition, there is the concern of violating the County residents' expectations of where the ICC would be located, based on the ICC's designation in the County Master Plan along Corridor 1. A more detailed assessment follows.

1. Community Impacts West of MD Route 97

West of MD 97, the alignment of Corridor 1 and Corridor 2 are the same, and the alignment has been reserved on the County's Master Plan, with the exception of the Rock Creek C Option. Where the alignments stay within the reservation, no communities are divided or homes isolated, no circulation patterns are altered, no access is altered to community facilities and services, and only 11 residences would be displaced (3 at the Redland Road overpass with Rock Creek Option A, 3 at the MD 115 overpass, 4 at the Emory Lane overpass, and 1 at the end of Sycamore Lane) along this approximately 6.5-mile portion of the project.[157] While the reserved corridor would be changed from a pastoral, park-like setting to a major highway, drastically altering the setting for the homes that border the highway, the proximity impact to adjacent homes has been minimized through either the provision of noise walls or by depressing the highway profile wherever possible. Every community west of MD 97 that experiences noise levels exceeding the abatement criteria is eligible to receive a noise wall or berm.

Rock Creek Option C would depart from the highway reservation in order to minimize impacts to Rock Creek Park. Three thousand feet of the Rock Creek Option C would cut through the center of Cashell Estates, where there is no highway reservation. This option would displace 15 of the 39 residences in Cashell Estates, two of the approximately 170 residences in Winters Run, and a residence along Needwood Road.[158] Rock Creek Option C would essentially divide the remaining homes in Cashell Estates into two communities, one along Redland Road, the other along Relocated Overhill Road, significantly impacting the community cohesion and setting. The Overhill Road residents would experience increased travel distance for travel to and from points north of the neighborhood. Noise walls would be constructed on both sides of the

[157] *FEIS,* Vol. 2, App. A, Plates 3, 4, 5 and 12.

[158] *FEIS,* Vol. 2, App. A, Plates 6,7, 8 and 12a.

ICC through Cashell Estates. Through Winters Run, Rock Creek Option C generally follows an existing reservation for Mid-County Highway (M-83), although the reservation is only 150-feet wide. Consequently, the highway would be constructed with retaining walls and noise walls on both sides of the highway through Winters Run. This construction would require additional land from the backyards of the homes adjacent to the highway. The view from the highway would be one of a "concrete canyon" with the retaining walls located just a few feet outside of the shoulders of the highway.

There are two options for Rock Creek C through Winters Run, one that maintains Olde Mill Run Road as an overpass of the ICC, and one that severs, or cul-de-sacs, Olde Mill Run Road. The cul-de-sac option would require the Winters Run residents who are south of the ICC to utilize a new extension of Garrett Road, that connects via Overhill Road to Redland Road, as their only access to their community. This would add significantly to their vehicular travel distance for destinations north and east of their community, including to Redland Middle School, Winters Run Local Park, and Saint Francis of Assisi Catholic Church. The southern portion of Winters Run would lose all sense of community association with the northern portion of Winters Run. The Rock Creek C option with an Olde Mill Run overpass would result in a bridge carrying Olde Mill Run Road over the ICC to maintain existing access patterns for the southern portion of Winters Run. The southern portion would, nevertheless, feel isolated from the northern portion by the highway "canyon." The structure carrying Olde Mill Run Road over the ICC was evaluated as bridge that could be from 60-foot to700-foot long. A 700-foot long bridge, if selected, would be constructed as a cut-and-cover section, to provide a park-like setting above the highway, thereby minimizing the intrusion of the highway for a portion of the community. (Longer cut-and-cover sections are impractical due to the expense of required ventilation systems.) During construction of the bridge, access for the southern portion of Winters Run would most likely be maintained via a temporary extension of Garrett Road, which would significantly disrupt local circulation for the duration of the construction. Due to the issues concerning community disruption and isolation, Rock Creek C with overpass was considered by the study team to be preferable to the Rock Creek C with cul-de-sac.

As was previously mentioned, Rock Creek C follows a reservation for Mid-County Highway through the Winters Run community. Prior to selecting a preferred Rock Creek Option, there were three possible scenarios for how the ICC and Mid-County Highway could affect the Winters Run and Cashell Estates communities:

Scenario 1 - The ICC is constructed along Rock Creek A, and Mid-County Highway is constructed along the 150-foot reservation through Winters Run. This would result in a portion of the Winters Run community being completely surrounded by highways. Cashell Estates would remain intact. In this scenario, the Mid-County Highway would have an interchange with the ICC just east of Needwood Road.[159] This scenario is proposed in area master plans.

Scenario 2 - The ICC is constructed along Rock Creek C, and Mid-County Highway is constructed to tie into Rock Creek C via interchange ramps just west of the Winters Run

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[159] *FEIS,* Vol. II, App. A, Plate 5.

community.[160] This would require a modification of the master plan locations of the ICC and the interchange connecting the two highways. Cashell Estates would be heavily impacted by the ICC (as discussed above), and Winters Run would have a highway slicing through it, but no highway south of it.

Scenario 3 - The ICC is constructed along Rock Creek A, and Mid-County Highway is extended along the west and south side of the Winters Run community to a new interchange with the ICC within Rock Creek Park.[161] This would require a modification of the master plan location of the Mid-County Highway and its interchange with the ICC. The Montgomery County Council indicated a willingness to consider this alternative location for the Mid-County Highway interchange in the event that Rock Creek A is selected for the ICC. This would leave Cashell Estates mostly intact, but would result in a highway along the west and south side of Winters Run.

2. Community Impacts East of MD Route 97

Corridor 1 would stay within the ICC reservation everywhere except through Northwest Branch Park. However, this departure from the Master Plan has a slight benefit with respect to community impacts (the alignment would be further removed from homes on Longmeade Road in the southeast quadrant of the interchange). Where the alignment is within the Corridor 1 reservation, no communities are divided or isolated (with the exception of Longmeade, discussed in further detail below), no preexisting circulation patterns are altered, and no access is altered to community facilities and services. Along the approximately 12-mile portion of Corridor 1 from MD 97 to US 1, 27 residences would be displaced (just over 2 per mile), with 1 additional residential displacement along the 1-95 widening, which is common to both alternates.[162] The displacements along Corridor 1 consist of 4 at the MD Route 28 overpass, 1 in Longmeade, 1 at the MD 182 interchange, 1 at Notley Road, 7 at the MD 650 interchange, 1 in Paint Branch Park, 3 near Old Columbia Pike, 3 for the partial interchange at Briggs Chaney Road, 4 in the vicinity of Old Gunpowder Road overpass, 1 along Muirkirk Road, and 1 in the vicinity of Virginia Manor Road.[163] Proximity impacts to adjacent homes have been minimized by either the provision of noise walls or by depressing the highway profile wherever possible.

Corridor 1 would stay within the 300-foot corridor that was set aside for the ICC as it traverses the Longmeade community. The townhouses were built with a reservation for the highway corridor. Nevertheless, there is some sense of community cohesion between the two sides of the community because they share the same community recreation facilities. The alignment would be depressed to pass under MD Route 28 and under existing Longmeade Crossing Drive, which would be the only point of interaction between the two sides of the community. To minimize proximity impacts, noise walls would be provided wherever the

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[160] *FEIS,* Vol. II, App. A, Plate 6.

[161] *FEIS,* Vol. II, App. A, Plates 3 and 4.

[162] *FEIS,* Vol. II, App. A.

[163] *Id.*

projected noise levels exceed the abatement criteria. Although noise levels would be reduced, the visual environment would be significantly altered, as the front of the townhouses immediately adjacent to the ICC would now be facing noise walls instead of a forest. The physical presence of the highway would contribute to a sense of separation of the two sides of the community. In addition, during construction of the bridge carrying Longmeade Crossing Drive over Corridor 1, community access patterns for the residents on the west side of the ICC could be significantly disrupted, resulting in long detours for travel to and from points north of the community, unless SHA can identify, during project design, a method for maintaining the existing travel patterns while constructing the bridge.

At the MD 650 interchange, seven of the ten residences in a small cluster of homes on the west side of MD 650 would be displaced.[164] This impact would affect community cohesion for the remaining residences.

The three-level interchange at US 29 would tower over all the communities in proximity to US 29, including the minority communities of Tanglewood and Avonshire. Consistent with the Executive Order on Environmental Justice (EJ)[165], the Corps requested that SHA conduct a thorough evaluation of alternative interchange designs, including several two-level concepts, in order to reduce the visual impact on the EJ communities. SHA selected the three-level interchange because it provided superior traffic circulation. However, a forest buffer would remain between Avonshire and the interchange to screen the view of the interchange. A vegetated earthen berm would be constructed between Tanglewood and the interchange. Engineering studies show that these measures would block the view of the three-level interchange from the communities. Ultimately, the issue was resolved by a commitment in the FHWA ROD to screen the view of the interchange from these communities.[166]

There was an issue with the US 29 interchange regarding the prospect of additional traffic utilizing the proposed partial interchanges with Briggs Chaney Road and Old Columbia Pike. The partial interchange with Old Columbia Pike was dropped in response to this issue. The partial interchange at Briggs Chaney Road is needed to accommodate trucks traveling between the ICC and the business parks along Briggs Chaney Road because the ICC/US 29 interchange could not accommodate all the required local movements. This partial interchange was not designated on the Master Plan, and traffic would be increased on this portion of Briggs Chaney Road as a result of the partial interchange. Consequently, the same arguments that are being made by residents along Corridor 2 can be made at this location, i.e. that residents could not have anticipated this impact when they purchased their homes.

Throughout the alignment of Corridor 1, the corridor would change from a pastoral, park-

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[164] *FEIS,* Vol. II, App. A, Plate 25.

[165] Exec. Order No. 12898.

[166] Federal Highway Administration Record of Decision (May 30, 2006) (hereinafter *FHWA ROD*), at, Attachment E, p.4, No. 18 (commitment Number 18 out of 160).

like setting to a highway, drastically altering the setting for the homes that border the highway. This proximity impact to adjacent homes has been minimized by depressing the highway profile wherever possible, and through the provision of noise walls at every community that would experience noise levels exceeding the noise abatement criterion of 67 dBA.

Corridor 2 would displace from 55 to 61 residences along the approximately 14-mile portion of the alternative east of MD Route 97 (approximately 4 per mile) depending upon the combination of Norbeck, Spencerville, and Fairland options that is selected, and 1 residence along the I-95 widening that is common to both alternatives.[167] (These calculations do not include Burtonsville B, which the study team dropped due to its impact on the Rocky Gorge Reservoir). The residential displacements of Corridor 2, east of MD 97, would result in approximately double the number of displacements compared to staying on the master plan alignment east of MD 97. While 4 displacements per mile is not an impact that is unprecedented or unusual for a project of this scale on new location, it is, nevertheless, a larger residential impact than would be associated with Corridor 1.

There is considerable disparity between the two corridors in their impact on communities. With Corridor 2, access to communities from the existing road network would be altered, affecting the length of travel for people making local, everyday trips such as to school, to market, and to after-school activities. For example, with Norbeck Option A[168], one Mt. Everest Lane residence would remain on the north side of the ICC, and would be given a new driveway out to Batchelors Forest Road.[169] While this would shorten the trip to destinations in Olney by approximately 1.5 miles, it would add as much as 2.6 miles to trips with destinations along the MD 28/198 corridor, east of Mt. Everest Lane. Norbeck Option B could result in a new driveway for the Willow Grove historic site, and the two adjacent residences, giving them new access via Mount Everest Lane.[170] This would give them access through a community with which they currently have no identity, and would also change access patterns in a manner that is the reverse of that which was described under Option A. (It is noted that due to the cost of acquiring the Trotters Glen Golf Course, Norbeck B is $42 million more expensive than Norbeck A, therefore, Norbeck A is the obvious choice between the two options.)[171] Noise walls were considered feasible and reasonable by SHA along this segment of Norbeck A, which would help reduce the proximity impacts of the road on the Mt. Everest Lane community.

At Barn Ridge and Whitehaven Roads in the Norbeck Knolls community, either of the Norbeck Options would displace 5 of the 35 residences on Barn Ridge and 3 of the 23 residences on Whitehaven.[172] This is a loss of 13-14 % of the Norbeck Knolls community. The remaining

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[167] *FEIS,* Vol. II, App. A.

[168] *FEIS,* Vol 2, App. A, Plate 42.

[169] *Id.*

[170] *FEIS*, Vol 2, App. A, Plate 46.

[171] *FEIS*, p. VII-13.

[172] *FEIS*, Vol. 2, App. A, Plates 43, 47, 48.

homes would all be on the same side of the ICC, therefore, there would be no division of the community. However, the sole entrance to the community would be altered to require travel across the ICC freeway with every trip to or from their community, which is a significant change in the appearance and character of the entrance to their community. The access from MD 28 to Barn Ridge and Whitehaven Roads would be combined into a single entrance at Whitehaven Road, with a new local road connecting the two streets (combining the entrances in this manner allowed the intersection of MD 28 at Barn Ridge Drive to be eliminated, and enabled the ICC profile to be further depressed to minimize visual impacts). This new access would increase the travel distance for Barn Ridge Road residents traveling westward on MD 28 by over one-half mile. The National Register eligible Amersley historic site would experience an adverse effect. Noise walls were not considered feasible and reasonable by SHA along this segment of Corridor 2.

In the southwest quadrant of the MD 28/ MD 182 intersection, the community of Norwood Village would be impacted by noise and visual impacts where the ICC would be elevated to overpass MD 182. The ICC would be visible to many homes in the community, permanently altering the skyline and giving the community the sense that they live in the shadow of the ICC. The possibility of taking Corridor 2 under MD 182 was analyzed but was not adopted because it would have increased the Section 4(f) impacts to the Holland Store and James Holland House historic site. Noise walls along the ICC were determined to be ineffective at shielding Norwood Village from noise impacts because traffic along MD 28 would continue to be the dominant source of noise for this community.

Along the portion of Corridor 2 that upgrades Norbeck Road from a signalized boulevard to a freeway, existing entrances onto Norbeck Road from Llewellyn Fields and Hampshire Greens would be terminated.[173] This would add some additional travel distance for local trips (to school, to market, to after-school activities, etc), particularly for trips oriented to the east and south from Llewellyn Fields and trips oriented to the west and south from Hampshire Greens. Noise walls were considered reasonable and feasible for Llewellyn Fields, the Old Orchard Road community (on the north side of Corridor 2), and Norwood Estates (on the south side of Corridor 2). Concerns have been raised that the elimination of Norbeck Road as a component of the local network would cause the diverted traffic to overwhelm Norwood Road, Ednor Road, and New Hampshire Avenue. The traffic studies summarized in the FEIS indicate that, with Corridor 2, the traffic volumes on Ednor and Norwood (south of Ednor Road) would be within the capacity of a two-lane road.[174] North of Ednor Road however, MD 182 would experience a 28 % increase in traffic that would exceed the capacity of the existing two-lane road.[175] Traffic on New Hampshire Avenue (MD 650) would more than double between Ednor Road and MD 198, exceeding the capacity of the existing two-lane road.[176] The residents of Hampshire Greens

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[173] *FEIS*, Vol. 2, App. A, Plate 48 and 51.

[174] *FEIS*, Tbl. IV-108 on p. IV-363.

[175] *Id.*

[176] *Id.*

currently have the use of a high-speed arterial (Norbeck Road Extended) for their local travel but with Corridor 2 they would lose the use of that facility, being forced to either take a more-circuitous route on the substandard two-lane Ednor Road, or pay a toll to use the ICC.[177] It is acknowledged that this would be a diminishment of the free highway service that they currently enjoy. In addition, the ICC would have a larger scale and function than either the existing two-lane (or proposed 4-lane) Norbeck Road Extended, thereby diminishing the semi-rural character of the area. It is noted that the more circuitous travel to and from existing communities, as described above, is an impact that is not uncommon when a highway is constructed on new location, or when an existing arterial road is upgraded to a freeway, but such impacts do not occur with Corridor 1.

Through Spencerville, there are four options. As stated previously, Spencerville D connects only to Burtonsville B, which the study team dropped from consideration due to its impacts on the Rocky Gorge Reservoir. Consequently, Spencerville D is not a viable alternative. Spencerville A, B, and C all impact the community on the south side of MD 198, just east of MD 650, in a similar manner. Spencerville A leaves one isolated home remaining from that community, whereas Spencerville B and C take all 8 homes. Of the three options, only Option C results in some circuitous travel for four homes remaining on the south side of MD 198. With all three options, the ICC could be depressed as it parallels MD 198, from MD 650 to just east of Good Hope Road, passing under Good Hope Road, to minimize the visual intrusion on the surrounding communities. Near Good Hope Road, all three options have substantial impact. Option A would displace all 8 homes on Upland Drive. Option B would displace the Korean Church. Option C would have an adverse effect on Edgewood II, a National Register listed historic structure that is currently operated as a bed and breakfast. The proximity of the ICC Option C could affect the viability of this business, thereby jeopardizing the continued preservation of the historic site. Although a noise wall was found feasible and reasonable to screen this historic site under Option C, the wall may not be conducive to attracting business as the bed and breakfast would no longer be visible from MD 198. While all three options would have objectionable impacts, Spencerville B seems to be the least objectionable because the Korean Church is currently planning to relocate to a bigger site. Therefore, Spencerville B to Burtonsville A would be the Corps' preference for a northern ICC route in Spencerville.

East of Good Hope Road, Burtonsville A would sever Thompson Road, cul-de-sacing it on each side of the ICC, and take 6 Thompson Road residences plus one additional residence in the vicinity of Station 700.[178] Noise walls were considered reasonable and feasible from just west of Thompson Road to just east of Peach Orchard Road. Because Thompson Drive does not currently connect to Rainbow Drive, and such a connection is opposed by those who send their children to Briggs Chaney Middle School, the cul-de-sac of Thompson Road would make travel to the west more circuitous for the Thompson Road residents remaining on the south side of the ICC. Likewise, for the six Thompson Road residents remaining on the north side of the ICC, Briggs Chaney Middle School would no longer be within walking distance, and these residents

[177] *FEIS*, p. VII-35.

[178] *FEIS*, Vol. 2, App. A, Plate 55.

would essentially be isolated from the remainder of their community by the ICC. Following the circulation of the DEIS, the study team evaluated the possibility of depressing Burtonsville A beneath Thompson Road in order to eliminate the change in travel patterns for Thompson Road residents and found that it is feasible, but would displace two additional residences.

Burtonsville A would carry Corridor 2 under Peach Orchard Road, displacing 5 residences from Peach Orchard Road, and have an adverse effect on the historical Free Methodist Camp Meeting Ground, which is a spiritual retreat that requires quiet and solitude to fulfill its mission. Several proposals for minimizing the disruption to the Camp Meeting Ground have been evaluated, as discussed in greater detail in this document, in the assessment of impacts to historic sites. Between MD 650 and Peach Orchard Road, any Spencerville option in combination with Burtonsville Option A has the potential to alter the rural character of Spencerville by introducing a major new freeway.

Between Peach Orchard Road and US Route 29, Burtonsville A would cross beneath MD 198, displacing 7 homes on the south side of MD 198 and the farm house on the north side of MD 198, resulting in the loss of half of the small community along MD 198.[179] Burtonsville A would also cross beneath Kruhm Road, displacing 2 homes. Existing local circulation patterns would not change; however, the Rusty Acres, Burtonsville Manor, and Fairview communities would have a major highway bordering them, and would experience proximity impacts due to a significant change in the pastoral character of the area. These proximity impacts would be minimized to some extent by depressing the profile, and by the incorporation of noise walls from just south of MD 198 to 2700 feet east of the Kruhm Road overpass.

From US 29 to MD 198, three homes would be displaced as Corridor 2 would parallel the south side of the PEPCO tower right-of-way. Two of these displacements are from a community of eleven homes located about 2000 feet east of US 29, in which all the residents are related. This is an unusual community in which three generations of descendants of George and Annie Snyder have constructed homes on the 50-acre parcel that Corridor 2 would bisect. An overpass would be constructed so that the remaining residents would have access to one another, but the physical presence of the highway would create a sense of isolation from one another.

Just south of MD 198, two residences would be displaced from the Blackburn Village community by Fairland Option A (only one displacement by Fairland B). Fairland A would also result in an adverse effect on the Isaac Burton House. A noise wall is considered feasible and reasonable for Fairland A. Fairland B would be further removed from the Blackburn Village community, and would not warrant noise mitigation. Fairland B would be extremely close to, but in the rear of, Tubby's Restaurant, effectively surrounding the business by highways. Due to an $18 million difference in cost, Fairland A would be the apparent choice between the two Fairland options.[180] (Fairland A was also favored by the EPA and FWS because it traversed less-valuable forested wetlands than Fairland B.)

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[179] *FEIS,* Vol. 2, App. A, Plate 69.

[180] *FEIS*, p. VII-23.

Proximity impacts are of similar magnitude for the residents that have to live along the freeway, regardless of which alternative is selected, but there would be two communities (Norbeck Knolls and Norwood Village) impacted by noise, that would not qualify for noise walls, if Corridor 2 were selected, whereas all the noise-impacted communities along Corridor 1 would qualify for noise walls. Another significant difference between the two corridors is that most of the residents along Corridor 1 had the opportunity to be aware of the highway route prior to purchasing their homes, while most of the residents along Corridor 2 could not have anticipated an ICC route near their community because no such route was shown on the County Master Plan. This issue was a major concern voiced by the residents due to the strength of the local planning process in Montgomery County. The Area Master Plans chart the location of major new infrastructure, and citizens and developers alike are able to rely on this information when making investments in property. Citizens commenting at the four public hearings repeatedly expressed concern that the selection of Corridor 2 would be viewed by the northern residents as a breach of the citizens' trust in their government and in the Master Plan process.

3. Impacts to Burtonsville Business Community

The opponents of Corridor 2 have argued that the ICC would destroy the Burtonsville business community by serving as a bypass which diverts many of the business patrons from the local roads on which the businesses are located. With respect to how businesses attract their customers, businesses can be classified as either "opportunity" businesses or "destination" businesses. Opportunity businesses are those which can attract a motorist who is enroute to some other destination, but upon seeing the business, decides to drop in. Such businesses as gas stations, fast food and well-known chain restaurants, convenience stores, and motels are examples of opportunity businesses. Destination businesses are those which a motorist would not frequent unless he had set out with that destination in mind. Examples are tanning salons, manicurists, pet grooming, mattress and furniture stores, and grocery stores. The Corps' project manager personally inventoried the businesses in Burtonsville (along US 29 and MD 198) and found that the vast majority were destination type businesses. In addition, those few businesses that would benefit from passers-by (Starbucks, 7-Eleven, two gas stations, Jerry's Subs, and the fast food establishments) would all have the opportunity to advertise on a highway sign erected in advance of the ICC exit ramps to US 29. Therefore, the Corps does not agree that Corridor 2 would result in substantial loss of patronage for the Burtonsville businesses.

4. Impacts to Historic Sites

Corridor 2 traverses an area that was influenced by early Quaker settlements. During the years leading up to the Civil War, the Quakers were active in assisting runaway slaves along the underground railroad. At least two of the historic structures in the study area were owned by Quakers. Edgewood II was once a Quaker farmstead and Woodlawn Manor was associated with the development of Olney and Sandy Spring by Quakers. The Maryland Historical Trust recently designated a Heritage Preservation and Tourism Area in this part of the County, which is based

on the theme of the Quakers and their role in the Underground Railroad.[181] The goal of local historians is to develop an orientation of the Quaker Underground Railroad experience at the historic stone barn at the Woodlawn Historic Site. A number of 19th century homes and remnants of farms are located in the vicinity of Corridor 2: Cashell Farm, Amersley, the George Bennett House, Spencer-Carr House, Isaac Burton House, Drayton Farms, William Phair House, and Woodburn. The latter four are log structures. The Holland Store (aka Red Door Store) is one of only two remaining examples in the County of a mid-19th century crossroads general store. The Free Methodist Church Camp Meeting Ground is an early 20th century church camp and retreat that is representative of an American religious tradition that began in the 18th century. The structure at the Alloway Cemetery is an example of unusual mid-20th century modernistic architecture.

Corridor 1 would result in an adverse effect on Cashell Farm and Willow Grove. (It is noted that, as the lead Federal agency, the FHWA is responsible for making determinations of effect. They must receive concurrence by the State Historic Preservation Officer, which in Maryland is the director of the Maryland Historical Trust.) The preferred combination of options for Corridor 2 would result in an adverse effect on Cashell Farm, Willow Grove, Amersley, Llewellyn Fields, Holland Store and James Holland House, Alloway Site and Cemetery, Edgewood II (with Spencerville Options B & C), Drayton (with Spencerville Options B & C), Free Methodist Church Camp Meeting Ground (with Burtonsville Options A, X, & Y), Columbia Primitive Baptist Church, and Isaac Burton House (with Fairland Option A).[182] Although not found under the discussion of historic impacts in the FEIS, the traffic analysis portion of the FEIS indicated that under both ICC Build alternatives, as well as the No-Build alternative, the projected traffic volume at the intersection of Layhill, Norwood, and Ednor Roads would exceed the capacity of the intersection, but significantly so under Corridor 2.[183] Therefore, future intersection improvements by the Montgomery County DPWT would have the potential to be extensive and pose a threat to the Holland Store, but the potential for such impacts is greatest with Corridor 2.

The adverse effect at Cashell Farm under both alternatives is due to the visual impact on the historic home.[184] This adverse effect could be reduced by vegetative plantings. The adverse effect at Willow Grove with Corridor 1 is due to visual impacts, while the adverse effect with Corridor 2 is due to both visual and noise impacts.[185] There is sufficient room to screen the

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[181] *See* Maryland Department of Housing and Community Development, *Heritage Preservation and Tourism* (March 1, 2006), *available at* http:www.marylandhistoricaltrust.net/hb-1.html; Maryland Department of Housing and Community Development, *Montgomery County Heritage Imitative* (August 5, 2005), *available at* http://www.marylandhistoricaltrust.net/ha-montg.html.

[182] All statements concerning the effects to historic properties in this document were taken from the discussion of historic impacts in the *FEIS,* beginning on p. IV-107.

[183] *FEIS*, Tbls. IV-111-112, pp IV-371 and 373.

[184] *FEIS*, p. IV-109.

[185] *FEIS*, p. IV-111.

property with plantings. Also, noise walls were considered reasonable and feasible at Willow Grove with Corridor 2, Norbeck Option A. The adverse effect at Amersley is due to visual and noise impacts (15 dBA increase).[186] Whitehaven Road would be relocated to within 60 feet of the historic site boundary. This area did not qualify for noise walls due to cost. Therefore, the visual and audible impacts would be difficult to mitigate. The adverse effect at Llewellyn Fields is due to a noise increase from 55 to 65 dBA.[187] However, a noise wall was found to be feasible and reasonable, which would reduce the noise level to 59. Therefore, this adverse effect could be mitigated. The historic residence at the Alloway Site and Cemetery would be 700 feet from the interchange ramp at MD 650. The adverse effect was due to visual impacts, since the existing vegetation is not dense enough to screen the view of the highway.[188] This adverse effect could be reduced by planting dense vegetation to block the view of the highway. Edgewood II, which is currently operated as a bed-and-breakfast, would experience an adverse effect, due to visual impacts of Spencerville B passing over Good Hope Road.[189] Since the issuance of the DEIS, the SHA has determined it is feasible to depress the ICC beneath Good Hope Road, which would enable the highway to be screened from view with plantings, thereby reducing the impact. With Spencerville C, Edgewood II would have an adverse effect due to visual and noise impacts as well as 3.7 acres of property acquisition.[190] A noise wall was considered to be feasible and reasonable. However, although the wall would screen the highway from the historic site, the Corps believes this would hurt the viability of the business by making the bed-and-breakfast less visible from the highway. As previously stated, the path of least objection through Spencerville appears to be Option B, for which the adverse effect on Edgewood II could be reduced. Drayton would receive an adverse effect with Spencerville B due to visual and noise impacts.[191] The noise level would increase 6 decibels to 61 dBA, which is not loud enough to meet the criteria for consideration of noise walls. The visual impact could be reduced by depressing Spencerville B beneath Good Hope Road. In addition, there is 700 feet between the highway and the site which could accommodate a sufficient width of plantings to block the view. Therefore, the adverse effect could be reduced. With Spencerville C, Drayton would experience an adverse effect due to noise and visual impacts that are considered to "diminish the property's intergrity of setting".[192] However, as was previously stated, the Corps does not favor selection of Spencerville Option C.

The Free Methodist Camp Meeting Ground would experience 13 and 17 dBA increases at the two noise receptors that were monitored.[193] A noise wall was found to be feasible and

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[186] *FEIS*, p. IV-112.

[187] *FEIS*, pp. IV-113-114.

[188] *FEIS*, p. IV-115.

[189] *FEIS*, p. IV-118.

[190] *Id.*

[191] *FEIS*, p. IV-116.

[192] *FEIS*, p. IV-116.

[193] *FEIS*, p. IV-120.

reasonable, but the view of the wall is considered to be so out of character with the setting and function of the camp that the FHWA considered it to result in a "substantial impairment of one or more of the attributes and features that contribute to the significance of the property",[194] thereby resulting in a Section 4(f) "constructive use" impact. According to FHWA, this adverse effect would be difficult to mitigate. The alignment of Burtonsville A could potentially be shifted sufficiently south to eliminate the "substantial impairment." A shift 300 feet southward, known as Burtonsville Option Y, would not have reduced the visual and audible impact. A shift 550 feet southward, known as Burtonsville Option X, would have displaced an additional 14 residences, would have isolated the homes on Rowland Lane from the rest of the Peach Orchard Estates community, and would have cost an additional $13 million.[195] A 1300-foot tunnel was considered as a means of eliminating both the noise and visual impact on the historic site, but the $60 million construction cost was considered by the project proponents to be prohibitively expensive.[196]

The Columbia Primitive Baptist Church would experience an adverse effect due to the visual intrusion of the interchange immediately north of the church building.[197] This would be difficult to mitigate with plantings because there is less than 100 feet between the church property and the interchange ramp. The Isaac Burton House would have an adverse effect with Fairland Option A due to noise and visual impacts.[198] A noise wall was found to be feasible and reasonable, and would reduce the noise to 59 dBA. The highway toe-of-fill would be as close as 20 feet to one corner of the property and as far as 135 feet at the opposite corner, making it difficult to screen the highway from the property with plantings, but the noise wall could reduce the visual impact. Fairland Option B would not result in this adverse effect.

In summary, Corridor 2's adverse effect on Amersley, Free Methodist Camp Meeting Ground, and Columbia Primitive Baptist Church would be difficult to mitigate. Despite the fact that the adverse effects at the other historic sites along Corridor 2 could be reduced by depressing the ICC, erecting noise walls, or planting vegetative screenings, the rural, low-density character of the area, which in many cases enhances the historical setting, would be permanently changed by the introduction of a modern, high-speed highway, and the development that would follow.

FHWA also determined that Corridor 2 would result in a determination of "no adverse effect" at the Casey Barn, White's Hardware Store, Woodlawn Manor, Joseph Harding House, William Phair Property, Spencer-Carr House, George Bennett House, Duvall/Kruhm House, and Burtonsville Forest Fire Lookout Tower, while Corridor 1 would result in a determination of "no adverse effect" at only the Casey Barn and White's Hardware Store.[199]

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[194] *FEIS*, p. V-157.

[195] *FEIS*, p. V-58.

[196] *Id.*

[197] *FEIS*, p. IV-122.

[198] *FEIS*, p. IV-124.

[199] *FEIS*, pp. IV-108-123.

5. Impacts to Schools

Corridor 1 would be constructed adjacent to the Drew Elementary School. A noise wall was determined reasonable and feasible at this location. As compared to the No-Build, Corridor 1 would result in a decrease in traffic of 10% or more in front of Magruder High School, Redland Middle School, Sequoyah Elementary School, Sandy Spring Friends School, Glenallan Elementary School, Cloverly Elementary School, High Point High School, Calverton Elementary School, Galway Elementary School, and Greencastle Elementary School.[200]

Spencerville Option B of Corridor 2 would displace the Korean Spencerville Seventh Day Adventist Church Academy, a school which is currently planning to move to a larger facility. As compared to the No-Build, Corridor 2 would result in a decrease in traffic of 10% or more in front of Magruder High School, Redland Middle School, Sequoyah Elementary School, Argyle Middle School, Glenallen Elementary School, Calverton Elementary School, Galway Elementary School, and Burtonsville Elementary School, and an increase in traffic of 10% or more, as compared to the No-Build, in front of Sandy Spring Friends School.[201] Corridor 2 would also affect the travel time to Blake High School and Briggs Chaney Middle School due to the proposed highway's effects on the local road network.

D. Impacts to Parklands and the Natural Environment

Montgomery County has been acquiring land for their park system and the Master Plan alignment of the ICC for many years. As this land has been acquired, the rights-of-way for the ICC Master Plan alignment have been reserved through parks. These reservations are not considered by FHWA to be park land. However, where the Master Plan alignment was later modified to what has now become Corridor 1, some land that was originally acquired for park purposes is now part of Corridor 1 and does not have a reservation for the ICC, and is considered by FHWA to be park land.

1. Parklands West of MD 97

Corridor 1 and Corridor 2 are on the same alignment west of MD 97, with the exception of the portion through Rock Creek Regional Park, where there are two options for traversing the Park, Rock Creek Option A and Rock Creek Option C. Along the portions of the alignment that are common to both alternatives, Mill Creek Stream Valley Park and North Branch Rock Creek Stream Valley Park would be impacted as described below.

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[200] Traffic volume changes are at *FEIS*, Vol. 2, Fig. IV-11 and community facilities and services are at *FEIS*, Vol. 2, Fig. II-4.

[201] Traffic volume changes are at *FEIS*, Vol. 2, Fig. IV-12 and community facilities and services are at *FEIS*, Vol. 2, Fig. II-4.

a. Mill Creek Stream Valley Park

A right-of-way for the ICC was reserved through Mill Creek Park prior to the parkland being acquired. Consequently, the ICC highway reservation is not considered to be parkland. There are several areas, however, where fill slopes or stormwater management ponds would extend beyond the reservation and encroach into the park, amounting to 4.0 acres of park loss.[202] A tributary of Mill Creek would be crossed with a box culvert at Station 174, filling two small spring seeps that are considered by MNCPPC to be an important component to the habitat diversity of the park. These seeps are important primarily for the function of providing groundwater discharge. There are no federal or state-listed threatened or endangered species known to be impacted within the Park. There are no existing or proposed formal hiking trails, but informal paths exist. Approximately 23 acres of forest would be lost within the Mill Creek watershed, consisting of 4.0 acres from within the Park and another approximately 15 acres from within the reservation that borders the park between Station 149 and 182.[203] Another approximately 34 acres of forest would be lost within the ICC right-of-way from Station 149 west to the Shady Grove Road interchange.[204] None of the forest loss is suitable habitat for birds that require large forest tracts to successfully breed.[205] Most of the forest cleared within the park is high ground, with the exception of the 3.2-acre floodplain forest impacted at Station 153 (of which 1.6 acres is also wetland), and the 1.7-acre forested floodplain at Station 174 (of which approx 0.3 acres is spring seep wetlands).[206] Approximately 350 feet of stream would be culverted at each of these two floodplain crossings (using box culverts that are sized to accommodate deer passage) and another 310 feet of stream impact at a crossing of a headwater stream at Station 162+50. Mill Creek is classified as Use IV waters (trout are stocked downstream in Lake Needwood).[207] As previously discussed, it is one of the poorer quality streams impacted by the ICC alternatives. The amount of forest clearing for the ICC within this watershed would further impair water quality and biological productivity.

b. Rock Creek Park

Rock Creek Park Option A would displace 33.4 acres of a 1500+ acre park and Rock

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[202] *FEIS*, p. V-16.

[203] Impact calculation was determined by scaling measurements from *FEIS* Vol. II, Fig. II-16, since this information was not quantified elsewhere in the *FEIS*.

[204] *Id.*.

[205] These bird species are commonly known as Forest Interior Dwelling Species, or FIDS, and include many migratory species such as tanagers, warblers, hawks, and woodpeckers. They have attracted particular interest in recent years due to the fact that their habitat requirements are rapidly being lost due to development.

[206] *FEIS*, App. A, Vol. II, Plate 9.

[207] *NETR*, p. II-154.

Creek Option C would displace 8.0 acres of the park.[208] The right-of-way for the ICC was not reserved through Rock Creek Park, therefore all of the required right-of-way, along both options, is considered a taking of park land.[209] Rock Creek Park serves both recreation and conservation purposes. Formal trails are proposed along the stream, but do not currently exist. Rock Creek A would be located just north of Lake Needwood, a recreational component of the park, however, the study team does not believe it would be visible from the Lake. The impacted portion of the park is a conservation area, that contains forest interior habitat and important aquatic resources. Between Redland Road and Muncaster Mill Road, there is a 131-acre forest that would qualify as FIDS habitat.[210] Rock Creek A would directly displace 13.8 acres of the interior forest.[211] In addition, another 39.7 acres of the interior forest would become edge habitat, which is unsuitable habitat for FIDS.[212] Rock Creek A would also divide the interior forest into a 30-acre tract south of the ICC and a 46-acre tract north of the ICC, both of which would continue to be large enough for FIDS, based on Critical Areas Commission guidelines.[213]

The alignment of Rock Creek C is just south of MD Route 115, therefore, the alignment is at the upper end of the existing interior forest. Rock Creek C would displace approximately 3 acres of the interior forest and convert another 12.9 acres of interior to edge habitat.[214] The remaining interior forest in the park would be approximately 115 contiguous acres.[215] There are no federal or state-listed threatened/endangered plant or animal species affected along either alignment. However, Rock Creek A impacts habitat of two plant species (American chestnut and bashful bullrush) that have a lower state ranking which does not afford regulatory protection (i.e., "rare" and "watchlist" respectively) within a portion of the park that DNR has designated the Redland Springs Ecologically Significant Area.[216] Also Rock Creek A would impact habitat for chinquapin chestnut, chinquapin oak, shingle oak, pubescent sedge, showy skullcap, and Small's ragwort (species that are of high local importance, but receive no state or federal regulatory protection because they are not designated as threatened or endangered), in a portion of the park that MNCPPC has designated the Needwood North Biodiversity Area.[217] The Carolina tassle-rue is within 100 feet of the alignment and could be indirectly impacted. Rock Creek C would impact shingle oak and Small's ragwort. Rock Creek A would impact 99 sq. feet of vernal pool in Rock Creek Park, while Rock Creek C would impact 65 sq. feet of vernal pool east of the

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[208] *FEIS*, Vol.2, Fig V-9 and Fig V-10.

[209] *FEIS*, pp. V-12-13.

[210] *FEIS*, p. IV-260.

[211] *Id.*

[212] *Id.*

[213] *Id.*

[214] *Id.*

[215] *Id.*

[216] *FEIS*, Vol. II, Fig. II-19, and *FEIS*, pp. IV-289, and Tbl. IV-80 at p. IV-293.

[217] *Id.*

Park.[218] While Rock Creek A traverses two stream valleys within the Park, the aquatic impacts are low because it would follow the path of an abandoned railroad embankment across the Rock Creek mainstem, and because extensive bridging has been incorporated. Rock Creek A would impact 5.1 acres of floodplain, most of which occurs on the approach to the bridge over Rock Creek mainstem, because the railroad embankment would have to be widened.[219] Rock Creek C completely spans the floodplain of Rock Creek on a bridge but results in 1.1 acres of floodplain fill along a tributary.[220] Rock Creek Park also is considered to be both a hub and a corridor in DNR's Green Infrastructure Program.[221] A hub is a large contiguous wildlife habitat and a corridor provides a connecting greenway to other habitats.

c. North Branch Rock Creek Stream Valley Park

There is a partial reservation for the ICC through North Branch Rock Creek Stream Valley Park.[222] Consequently, only 17.7 acres of parkland is taken, of which approximately 16.4 acres is forested.[223] There are informal equestrian and hiking trails in the park, but no planned formal trails. The mainstem of North Branch Rock Creek would be crossed with a high bridge, spanning almost the entire floodplain. The tributary at Station 328 would be crossed with a 130-foot long bridge resulting in the loss of approximately 1.6 acres of floodplain, of which approximately 0.35 acres are wetlands.[224] Trailing stitchwort, a State-endangered plant, would be impacted just east of the crossing of the mainstem, as well as two locally important plants, low bindweed (State rare) and shingle oak (no State rank), would be impacted.[225] Due to the presence of these species, the large contiguous interior forest, and high quality wetlands, MNCPPC has designated this area as both a "biodiversity area" and a "best natural area."[226] A portion of the alignment also traverses the Upper Rock Creek Special Protection Area, another MNCPPC designation for lands that have high quality stream systems that merit additional protection in the subdivision approval process. The ICC would split a 176.4-acre forest interior habitat, directly displacing 17.2 acres of interior forest, and converting another 39.2 acres of interior forest to edge habitat.[227] A 58.3-acre interior forest would remain north of the ICC, and a 61.7-acre interior forest would remain south of the ICC.[228] The forest also provides a hub and a corridor in

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[218] *FEIS*, pp. IV-280.

[219] *FEIS*, pp. IV-144.

[220] *Id.*

[221] *FEIS*, Vol. 2, Fig. IV-38.

[222] *FEIS*, Vol. 2, Fig. V-12.

[223] *FEIS*, pp. V-19-20.

[224] *FEIS*, Vol. II, App. A, Plate12.

[225] *FEIS*, pp. IV-289.

[226] *FEIS*, Vol. II, Fig. II-19.

[227] *FEIS*, Vol. 2, Fig II-17, Sheet 2 of 10, and p. IV-260.

[228] *FEIS*, p. IV- 260.

DNR's Green Infrastructure Program. The North Branch Rock Creek has "Fair" to "Excellent" ratings for habitat, macroinvertebrates, and fish community.[229] The temperature is not optimal for trout, and does not support a naturally reproducing population, although the stream is classified as Use III waters.[230] The State-threatened comely shiner has been recorded in this stream.[231] In summary, the primary natural resource of this park area is the forest, which provides FIDS habitat, a state-endangered and two locally-important plant species, and buffers the stream from development.

2. Impacts to Parklands East of MD 97

East of MD 97, Corridor 1 and Corridor 2 diverge. Corridor 1 of the ICC would impact Layhill Local Park, Northwest Branch Recreational Park, Northwest Branch Stream Valley Park, and Upper Paint Branch Stream Valley Park. A reservation exists along Corridor 1 through Little Paint Branch Park. Corridor 2 would not impact any parks, but would take a sliver of land (0.1 acres) from the Hampshire Greens Golf Course.

a. Layhill Local Park

Impacts to Layhill Local Park consist of the loss of 2.5 acres of parkland primarily affecting a soccer field.[232]

b. Northwest Branch Park

The Northwest Branch Park consists of the Northwest Branch Recreational Park and the Northwest Branch Stream Valley Park Unit 5. Two options of Corridor 1 are under consideration through the park. Northwest Branch Option B would make use of a reservation through a portion of the park, which is not considered parkland. This alignment runs longitudinally down the floodplain of Northwest Branch, and encroaches on 1200 feet of the stream, requiring a relocation of the stream. Northwest Branch Option A would result in the ICC being constructed on an S-curve through the park, and was developed for the purpose of reducing impacts to the floodplain, wetlands, and stream by re-aligning the road to cross the stream at more perpendicular angles. Northwest Branch Option A would impact 20.5 acres of the Bonifant Meadows Biodiversity Area compared to 12.6 acres for Northwest Branch Option B.[233] Northwest Branch Option A would result in impacts to 2534 linear feet of stream while Northwest Branch Option B would result in impacts to 3731 linear feet of stream.[234] The FEIS

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[229] *NETR*, pp. II-211-213.

[230] *NETR*, p. II-154.

[231] *FEIS*, p. IV-291.

[232] *FEIS*, p. V-40.

[233] *FEIS*, p. IV-300.

[234] *FEIS*, p. IV-157.

reports that Option A impacts 0.96 acres of wetland vs. 1.26 acres for Option B,[235] and 5.8 acres of floodplain fill for Option A vs. 11.8 acres of floodplain fill for Option B.[236] Both options have comparable amounts of forest impact, but with Option B, more of the forest loss is from within the floodplain. This is considered to result in a disparity between the two options with respect to impacts to water quality and floodplain functions. The floodplain forest provides important water quality and aquatic habitat functions with respect to flood storage, nutrient uptake, nutrient export, sediment and erosion control, bank stability, aquatic habitat structure, and shading of the stream. Therefore, the study team selected Option A over Option B, because Option A has less impact to aquatic resources while meeting the transportation objectives equally as well.

The impacts of Option A within Northwest Branch Park are as follows. Option A would displace 45 acres of parkland.[237] Option A would displace the National Capital Trolley Car Museum, which was partially destroyed by fire and has been planning to relocate. Option A would result in the construction of three bridges of 580, 870, and 1200 feet in length over the three crossings of Northwest Branch.[238] These would be 35 feet or more above the floodplain, providing sufficient passage for wildlife and future hiker, biker, and equestrian trails. Option A would displace 24.8 acres of interior forest and convert another 48.3 acres of interior to edge habitat.[239] The existing 144-acre interior forest would be fragmented into a 32-acre interior forest north of the alignment and a 32-acre interior forest south of the alignment.[240] Option A would impact known populations of rough avens, shingle oak, tall boneset, butternut, showy skullcap, Virginia snakeroot, bashful bulrush, woolly sedge, and Small's ragwort, which are locally important species, but are not federal or state-protected species because they do not have a designation of threatened or endangered.[241] Four county champion trees would be impacted.[242] Due to the presence of these species, the state has designated a portion of the park as the Northwest Branch-Bonifant Floodplain Ecologically Significant Area, and Montgomery County has designated a portion of the park as the Bonifant Meadows Biodiversity Area.[243] The Northwest Branch Park is considered both a hub and a corridor in DNR's Green Infrastructure Program.

Corridor 2 does not impact the Layhill Local Park or Northwest Branch Park. However, it is important to note the natural environmental resources that would be impacted in the Northwest Branch watershed by Corridor 2. Wetland impacts would amount to 4.10 acres and

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[235] *FEIS,* p. IV-210.

[236] *FEIS,* p. IV-145.

[237] *FEIS,* p. V-79.

[238] *FEIS,* Vol 2, App. A, Plates 17,19; and 20.

[239] *FEIS,* Page IV-260.

[240] *Id.*

[241] *FEIS,* p. IV-290.

[242] *FEIS,* p. IV-265.

[243] *FEIS,* Vol. II, Fig. II-19.

floodplain impacts would amount to 13.1 acres.[244] Recreation impacts would be limited to a 0.1-acre sliver from Hampshire Greens Golf Course. Stream impacts would amount to 5861 linear feet of perennial and intermittent streams, assuming construction of Norbeck Option A and Spencerville B.[245] (This impact could be reduced by half [2953 feet] with the selection of Norbeck Option B, however, Norbeck Option B would increase the project cost by $42 million.) Therefore, the Corps would agree that Option B is not a practicable option for reducing the stream impact of Corridor 2.[246] All of this stream impact would occur in headwater streams associated with Batchelors Run, which is a forested tributary to Northwest Branch that is beginning to experience development pressure but which the County is protecting through low density land uses and reservations of riparian forest corridors within proposed subdivisions. The forest impact of Corridor 2 in the Northwest Branch watershed is approximately 124 acres, compared to the total forest impact of 140 acres with Corridor 1, assuming Northwest Branch Option A.[247] FIDS habitat impacted by Corridor 2, Norbeck Option A just east of MD 97 (7.6 acres) is comparable to the acreage of FIDS habitat impacted by Corridor 1 just east of MD 97 (6.5 acres).[248] There are no designated Ecologically Significant Areas, Best Natural Areas, Biodiversity Areas, or known populations of rare, threatened, or endangered species within Corridor 2 in the Northwest Branch watershed.

c. Paint Branch Park

There is a reservation for Corridor 1 through most of Paint Branch Park. Although the FEIS indicated that the entire corridor was within a highway reservation, FHWA subsequently determined that 4.9 acres of parkland would be required. In addition, there are several areas where fill slopes, stormwater management ponds, or culverts would encroach into the Park, amounting to 6.2 acres of forested park loss.[249] The entire reservation is forested, therefore approximately 61 acres of forest would be cleared in addition to the 11.1 forested acres from within the Park..[250] Approximately another 40 acres of forest would be impacted on Corridor 1 east of the park boundary.[251] Corridor 1 would impact a 251-acre interior forest, directly displacing 32.3 acres, and converting another 72.8 acres of interior forest to edge habitat.[252] The remaining interior forest would be divided into a 18.6-acre parcel north of the ICC and a 127.7-

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[244] *FEIS*, pp. IV-146 and 210.

[245] *FEIS*, p. IV-210.

[246] *FEIS*, p. VII-13.

[247] Impact calculation was determined by scaling measurements from *FEIS,* Vol. II, Fig. II-16, since this information was not quantified elsewhere in the *FEIS.*

[248] *FEIS,* p. IV-261.

[249] *FEIS*, Vol. 2, Fig. V-31.

[250] *FEIS* Impact calculation was determined by scaling measurements from *FEIS,* Vol. II, Fig. II-16, since this information was not quantified elsewhere in the *FEIS.*

[251] *Id.*

[252] *FEIS*, p. IV-261.

acre forest south of the ICC.[253] Bridges are provided across the Good Hope tributary, the Gum Springs tributary, and the Paint Branch mainstem, spanning all the wetlands and floodplains associated with these three streams. The Park is both a hub and a corridor on DNR's Green Infrastructure Program, but all three bridges would be high enough to provide adequate clearance for hikers, equestrians, and wildlife.[254] A culvert would be constructed over the spring seep wetland behind the Maintenance Depot, but a drainage layer would be constructed beneath the culvert to ensure that groundwater can continue to discharge to the Good Hope. Populations of the locally important American chestnut, chinquapin chestnut, shingle oak, Small's ragwort, Virginia snakeroot, and umbrella magnolia would be impacted.[255] Due to the presence of these species, the large contiguous interior forest, and the trout stream, MNCPPC has designated portions of the Park as a "Biodiversity Area," a "Best Natural Area," and a "Special Protection Area."[256] Impacts from Corridor 1 to these areas amount to 31.8 acres, 54.9 acres, and 102.1 acres, respectively.[257]

Corridor 2 does not impact any parkland in the Paint Branch watershed. Corridor 2 would result in the loss of approximately 10 acres of forest in the Paint Branch watershed.[258] Burtonsville A would enter the Spencerville Seeps Ecologically Significant Area, which is the name given by DNR to the general area known to contain the State-threatened featherbells.[259] The alignment would be north of the plant's actual location however. Corridor 2 would impact 113.6 acres in the Upper Paint Branch Special Protection Area.[260]

d. Little Paint Branch Park

There is a reservation for Corridor 1 through Little Paint Branch Park. Consequently, no parkland is taken. Corridor 1 would sever a 40.8-acre habitat for FIDS, leaving remnants that are too small to be usable by FIDS.[261] Corridor 1 would impact approximately 105 acres of forest, two County Champion trees, six vernal pools amounting to 3506 square feet, and would cross the

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[253] *Id.*

[254] *FEIS*, Vol. 2, Fig. IV-38.

[255] *FEIS*, p. IV-290.

[256] *FEIS*, Vol. II, Fig, II-19. "Special Protection Area" designation means the area contains existing water resources, or environmental features directly relating to those water resources, that are of high quality or are unusually sensitive, and proposed land uses would threaten the quality or preservation of the resources.

[257] *FEIS*, pp. IV-299-300.

[258] Scaled from *FEIS*, Vol. II, Fig II-16.

[259] *FEIS*, Vol. II, Fig, II-19.

[260] *FEIS*, p. IV-299.

[261] *FEIS*, p. IV-262.

Little Paint Branch which contains the State-threatened comely shiner.[262] The Little Paint Branch Park is a wildlife hub on DNR's Green Infrastructure Program[263], but the proposed bridge would be high enough to pass wildlife beneath the bridge.

Corridor 2 traverses the Little Paint Branch watershed for only a short distance. Fairland Option A would traverse an 18.1-acre habitat for FIDS, leaving a remnant that is too small to be usable by FIDS.[264] It is noted that a proposed development would impact this same FIDS habitat if the ICC does not. Fairland Option A would also impact approximately 25 acres of forest[265] and 20.4 acres from the McKnew Bog Ecologically Significant Area, which contains the State-threatened halberd-leaved greenbrier.[266] The McKnew Bog is a wildlife hub on DNR's Green Infrastructure Program.[267]

E. Impacts to the Trout Stream

The Paint Branch has long been viewed as one of the highest quality streams in the Washington Metropolitan area, largely because of its ability to sustain a naturally-reproducing population of brown trout, which is a pollution-intolerant species. Although brown trout are not a native species and were originally introduced through stocking, they are considered to have become a naturalized species. DNR does not stock this stream in order to ensure that the gene pool is not diluted with the less-hardy, hatchery-reared fish. In 1974, Paint Branch was the first Montgomery County stream to receive a classification as Use III Waters. In 1980, DNR designated Paint Branch above Fairland Road as a "Special Trout Management Area," the first such designation in Maryland, requiring anglers to release their catch. The 1981 Eastern Montgomery County Master Plan cited the brown trout fishery in Paint Branch as a unique resource requiring special measures to preserve it. In 1995, the Upper Paint Branch was designated by the Montgomery County Council as a Special Protection Area (SPA). The SPA designation imposes special development requirements, including a ten percent limit on impervious surface in new developments. From 1995 to the present, Montgomery County has had an ambitious program of land acquisition, restoration projects, and stormwater management retrofits designed to protect and restore this resource.

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[262] *FEIS*, pp IV-266, 282, and 291. *See also FEIS*, Vol II, Fig. II-16. *FEIS* Impact calculation was determined by scaling measurements from *FEIS* Vol. II, Fig. II-16, since this information was not quantified elsewhere in the *FEIS*.

[263] *FEIS,* Vol. II, Fig. IV-38.

[264] *FEIS*, p. IV-262.

[265] *FEIS* Impact calculation was determined by scaling measurements from *FEIS* Vol. II, Fig. II-16, since this information was not quantified elsewhere in the *FEIS*.

[266] *FEIS*, p. IV-294.

[267] *FEIS*, Vol. 2, Fig. IV-38.

SHA's study of the stream system in 1995-1996 revealed the structure of many of the stream channels was impaired. The majority of the Paint Branch mainstem was determined to be incised and undergoing channel widening to create a new floodplain. The Left Fork and Gum Springs tributaries were down-cutting, with significant bank erosion and sedimentation. The Right Fork was relatively stable. The Good Hope tributary was stable from Hobbs Drive to the mouth, but only moderately stable upstream of Hobbs Drive. Channel enlargement from erosion and scour appears to have occurred in most areas, most likely due to the effects of development in the watershed. The Good Hope and Right Fork were found to have the lowest percentage of impervious surface and the Good Hope had the coolest water temperature. Based on electrofishing results, most of the reproduction was found to occur in the Good Hope. The presence of many species of warm water fish, such as sunfish and bullheads, and cool water fish, such as fallfish, was indicative of the shift in thermal conditions in the Paint Branch system.

Water quality parameters are monitored regularly by Montgomery County Department of Environmental Protection (MCDEP). Overall, Paint Branch shows the highest levels of metals (chromium, nickel, and zine) of all the study area watersheds, although they are well below state standards for Use III waters.[268] The stream has a low pH, which may contribute to the availability and concentration of metals.[269] Summer water temperature within the Paint Branch tributaries is at the upper limit of what is considered sustainable for the brown trout.[270] Levels of phosphorus and total solids were elevated above state standards at monitoring stations on Good Hope, Gum Springs, and Upper Mainstem.[271] MCDEP surveys of macro invertebrates indicated that the Good Hope and Right Fork tributaries consistently had the highest ratings over a ten-year period (with ratings of "Good" to "Excellent" based on total numbers, species diversity, and pollution intolerance), followed by the Upper Mainstem.[272] The fish communities were also ranked according to total numbers, biomass, species diversity, and pollution intolerance. The Paint Branch tributaries in the study area all rated "Good" to "Excellent" in the downstream reaches, but only "Fair" in the upstream reaches where the stream size is the limiting factor.[273]

Over the years, the trout population has sustained fluctuations as a result of natural and man-made causes. Since the late 1990's, the trout population in Good Hope and the other tributaries has taken a significant downward trend, as evidenced by the trout sampling conducted by DNR and MCDEP.[274] Four drought years have contributed to the decline since 1997. Drought conditions are particularly stressful for a number of reasons. The prolonged higher air

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[268] *FEIS,* pp. II-67, IV-175.

[269] *FEIS,* p. II-67.

[270] *FEIS,* p. IV-179.

[271] *NETR,* Tbl. II-F-49, p. II-166.

[272] *NETR,* p. II-221.

[273] *NETR,* pp. II-222-223.

[274] *FEIS,* Tbls. II-14 and 15, pp. II-78-79.

temperature elevates the stream temperature, and the drop in the groundwater table results in fewer discharges of cold water seeps. Lower flows limit available habitat, increase the in-stream competition for food sources and habitat, and decrease available cover from predators such as heron. The population rebounded slightly in 2004, however, the physical structure of the stream will continue to degrade as more of the watershed becomes developed. Table II-G-31 of the NETR indicates that the percentage of impervious cover in all tributary watersheds has risen above ten percent and will experience higher levels with full build-out and the planned widening of MD 198.[275] Ten percent impervious is the threshold beyond which stream degradation has been shown to substantially affect biological communities.[276] The Good Hope watershed was at 10.4% impervious in 2001 and is projected to reach 10.7% at maximum build-out, as currently zoned, without the construction of the ICC.[277] The ICC would add approximately 2% additional imperviousness to the Good Hope watershed and approximately 1% imperviousness to the Gum Springs watershed.[278] According to Table II-G-31 of the NETR, the Right Fork, Left Fork, and Fairland Farms watersheds are projected to experience sizable future increases in percentage of impervious cover, resulting in almost 16% imperviousness in each of those watersheds, even if the ICC is not constructed.[279]

In summary, over two decades of study of Paint Branch and its trout population has determined that the resource is constrained by the urban/suburban environment in which it is located. The trout population is highly susceptible to disturbances, whether of natural or manmade origin. While the stream continues to receive good ratings for macroinvertebrates, other conditions have stressed the trout resource to the point where the continued sustainability of the trout is uncertain. Future disturbances in the watershed, even without the ICC, could limit chances for long-term recovery.

III. Determination of the Least Environmentally Damaging Practicable Alternative (LEDPA) and Compliance with 404(b)(1) Guidelines

A. Water Dependency Test

The EPA's 404(b)(1) Guidelines state that activities involving the discharge of dredged or fill material into special aquatic sites (i.e., State and Federally- designated sanctuaries and refuges for the preservation of fish and wildlife, wetlands, mud flats, areas containing submerged aquatic vegetation, coral reefs, and riffle-pool complexes) are required to rebut two presumptions if the

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[275] *NETR*, Tbl. II-G-31, p. II-233.

[276] Center for Watershed Protection, *Impacts of Impervious Cover in Aquatic Systems, Watershed Protection Research* Nomograph No.1 (March 2003).

[277] *NETR*, Tbl. II-G-31, p. II-233.

[278] *FEIS*, Tbl. IV-64, p. IV-203. Percentage of imperviousness increases from 10.4% to 12.3%.

[279] *NETR*, Tbl. II-G-31, p. II-233.

activity is not "water dependent."[280]

A "water dependent" activity is one which requires access, or proximity to, or siting within a special aquatic site in order to fulfill its basic purpose. The basic project purpose of the Intercounty Connector is the on-land transportation of people and goods. Because on-land transportation is not a water dependent activity, the analysis of alternatives for the ICC must be able to rebut the presumptions that:

1. practicable alternatives which do not require a discharge of fill into a special aquatic site are presumed to be available, unless clearly demonstrated otherwise;[281] and

2. practicable alternatives which do not involve a discharge of fill into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem,[282] unless clearly demonstrated otherwise.

The Corps' involvement on the study team included concurrence in the suite of alternatives to be carried forward for detailed study in the DEIS (which implies concurrence in the alternatives that are being dropped). The analysis of the alternatives dismissed and carried forward, and the reasons for those decisions, are contained in Chapter III of the FEIS. Of the alternatives having the capability to satisfy the purpose and need for the project, none were found that avoided all discharges into special aquatic sites. Therefore, the first presumption has been rebutted. The second presumption allows the permit decision-maker to reject an alternative that avoids an aquatic resource if the end result is that the impact to the aquatic resource is made worse. Prior to making a permit decision, the Corps considered multiple alternatives, options, and alignment shifts to reduce the impact to aquatic sites, and evaluated whether the impact to the aquatic site was magnified or reduced by the proposed change.

B. The No-Build Alternative

The 404(b)(1) Guidelines anticipate that in most cases the NEPA range of alternatives will provide the range of alternatives for the 404 analysis.[283] Because the Corps was able to participate in the development of alternatives throughout the EIS study process, the range of alternatives carried through for detailed study in the in the FEIS is also the range of alternatives the Corps considered for its 404(b)(1) analysis.

The Corps does not consider the No-Build Alternative to be a practicable alternative in light of logistical problems dealing with traffic congestion and safety problems.[284] It would not

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[280] 40 C.F.R. § 230.10(a)(ii)(3) (2005).

[281] *Id.*

[282] *Id.*

[283] 40 C.F.R. § 230.10 (a)(4) (2005).

[284] 40 C.F.R. § 230.10 (a)(2) (2005).

address the Purpose and Need. As stated in the FEIS in *Chapter I. Purpose and Need*, the Washington metropolitan area is one of the most congested regions in the country, consistently ranking high in terms of annual hours of delay per traveler. The volume of traffic crossing the I-270 screenline in year 2000 was 706,000 vehicles.[285] This figure is projected to grow 29% by year 2030.[286] Figure I-4 in Vol. 2 of the FEIS shows that the existing east-west arteries in the study area are projected to have significant traffic increases by the design year 2030, and many segments will increase more than 50%. Of the 50 intersections that were studied, 29 of them are projected to have a failing level-of-service by the design year in either the AM peak, the PM peak, or both.[287] These 50 intersections would be at or over capacity for a total of 217 hours in a typical 24-hour period.[288] Figure I-9 in Vol. 2 of the FEIS shows that the east-west corridors and many of the north-south roads in the study area currently have accident rates that exceed the statewide average accident rate for their respective type facility. None of these problems can be addressed by the No-Build scenario.

C. The Decision West of MD 97

West of MD 97, the only choice in alternatives is Rock Creek Option A vs. Rock Creek Option C. Based on the aquatic impacts alone, there is no clear-cut preference for either option. Rock Creek C impacts 0.27 fewer acres of wetlands (0.40 vs. 0.67)[289] and 4.0 fewer acres of floodplain (1.1 vs. 5.1),[290] but Rock Creek C impacts 570 more linear feet of stream (2331 vs. 1761)[291] and has greater acreage of impervious surface (31.8 vs. 26.6).[292] During meetings of the study team, it became apparent that the floodplain impacts of Rock Creek Option A could be further reduced through the construction of retaining walls, which would have made the floodplain impacts of the two options similar.

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[285] *FEIS*, Tbl. IV-103, p. IV-352.

[286] *Id.*

[287] *FEIS*, Tbl. IV-112, pp. IV-371 and 373.

[288] *FEIS*, Chart IV-2, p. IV-384.

[289] *FEIS*, Tbl. IV-65, p. IV-210.

[290] *FEIS*, Tbl. IV-51, p. IV-145.

[291] *FEIS*, Tbl. IV-65, p. IV-210.

[292] *FEIS*, pp. IV-176-177.

The major considerations evaluated in the FEIS of this analysis showed the following differences:[293]

	Rock Creek A	Rock Creek C (with grade separation)
Acreage from Rock Creek Park*	33.4 acres	8.0 acres
FIDS habitat directly impacted	13.8 acres	3.0 acres
FIDS habitat converted to edge	39.7 acres	12.9 acres
Displaced Residences	3	18
Displaced Businesses	0	1
Forest **	48.5 acres	47.2 acres
Needwood Biodiversity Area	27.3 acres	5.9 acres
Redland Springs ES Area	9.1 acres	1.6 acres
Cost	$113 million	$169 million

* The Rock Creek Options impact three parks. However, the park impacts in Mill Creek Stream Valley Park and North Branch Stream Valley Park are identical for each Rock Creek Option. The differences occur in Rock Creek Park only, and are stated above.[294]

**It is noted that the forest impacted by Rock Creek A is more mature, with 74% of the forest impact to trees in the 18-30" dbh range, whereas 38% of the forest impacted by Rock Creek C is in this size designation.[295] Also, the forest impacted by Rock Creek A comprises an important habitat hub as defined in DNR's Green Infrastructure Program.[296]

The Corps did not recognize a clear choice for the LEDPA, and because the impacts to aquatic resources were relatively minor with either option (after consideration of additional retaining walls), the Corps' was not opposed to either option and did not state a preference for one option over the other. The SHA and FHWA, after consultation with resource agencies commenting on the 4(f) evaluation (particularly the Department of Interior)[297], selected Rock Creek C in deference to the concern for protecting park resources. Joint Corps and EPA policy dictate that when "there is no identifiable or discernible difference in adverse impact on the environment between the applicant's proposed alternative and all other practicable alternatives,

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[293] *FEIS,* Tbls. IV-81, p. IV-294 and V-3, p. V-70, and *FEIS,* p. IV-300.

[294] *FEIS*, p. V-70.

[295] *FEIS*, Tbl. IV-72, p. IV-251.

[296] *FEIS,* Vol. II, Fig. IV-38.

[297] 23 C.F.R. § 771.135 (i) (2005).

then the applicants alternative is considered as satisfying the requirements of 40 C.F.R. § 230.10(a)."[298]

D. The Decision East of MD 97

In comparing the aquatic impacts of the two ICC Build Alternatives east of MD 97, there is not a clear preference for either alternative based on aquatic impacts alone. Corridor 1 impacts 3.3 fewer acres of wetlands (42.51 vs. 45.79)[299] and approximately eight fewer acres of floodplain (16.4 vs. 24.9)[300], but Corridor 1 impacts approximately 3,000 more linear feet of ephemeral, intermittent, and perennial streams (37,417 vs. 34,454).[301] The Corps also considered the quality of the resources impacted by each alternative. The following discussion takes a closer look at the comparison of impacts to aquatic resources in each watershed.

In the Northwest Branch watershed, there is not an obvious preference between the two alternatives, based on aquatic impacts. While there are more linear feet of stream impacted by Corridor 1 (10,351 vs. 5861),[302] a closer examination of the quality and size of the impacted streams is important. The NETR indicates that the streams along Corridor 1 are poorer quality than the streams impacted by Corridor 2 in this watershed.[303] Of the streams in the Northwest Branch watershed that are impacted by the ICC alternatives, the highest quality are the Upper Mainstem and Bryant's Nursery Tributary, which are both impacted by Corridor 2.[304] Because Northwest Branch Option A realigned the Master Plan configuration of Corridor 1 to avoid most of the floodplain fill, Corridor 2 impacts substantially more floodplain than Corridor 1 (13.1 vs. 5.8 acres),[305] and the bulk of the Corridor 2 floodplain impact is in the higher quality watersheds of Upper Mainstem and Bryants' Nursery Tributary. Although the streams impacted along Corridor 1 are part of an extensive forest that is protected as parkland, which EPA suggests contributes to the value of these waters, the MNCPPC indicated during the meetings of the study team that they are also protecting forested corridors along the tributaries impacted by Corridor 2 (Batchelors Forest Tributary, Upper Mainstem, and Bryant's Nursery Tributary) through the

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[298] U.S.E.P.A. and Department of the Army, U.S. Army Corps of Engineers, *Memorandum to the Field, Subject: Appropriate Level of Analysis Required for Evaluating Compliance with the Section 404(b)(1) Guidelines Alternative Requirements* (1993) at section 3.a.iii.

[299] *FEIS,* pp. IV-210-213, with the post-*FEIS* refinements for Corridor 1, the latest refinements in the wetland delineation (see e-mail from Chuck Weinkam, Coastal Resources, to Paul Wettlaufer, Corps, (9 June 2006)), and an alignment shift to further minimize impact to wetland 7B (not yet depicted on a drawing).

[300] *FEIS,* p. IV-145, and post-*FEIS* refinements to Corridor 1.

[301] *FEIS,* pp. IV-210-213, and post-*FEIS* refinements to Corridor 1.

[302] *Id.*

[303] *See supra* § II.A.4.

[304] *NETR,* pp. II-102-103.

[305] *FEIS,* pp. IV-144-146.

subdivision approval process. Even though these forests are not part of a park system, they play a similar role in protecting the health and quality of the streams that are crossed by Corridor 2. Corridor 1 adds more impervious surface to the Northwest Branch watershed than Corridor 2 (94.6 acres vs. 79), but most of Corridor 2's impervious surface is in small headwater streams.[306] The Bryant's Nursery Tributary subwatershed is of particular concern with the percentage of impervious surface increasing from approximately 7 percent to close to 10 percent.[307] Small streams are more susceptible to the impacts of impervious surface than large streams. Impervious increases in small headwater streams can affect the stream's ability to perform functions recognized in several recent studies as critical to maintaining watershed health, such as nutrient reduction, groundwater recharge, sediment trapping, flood desynchronization, and ecosystem support for larger receiving streams.[308] The wetland impacts are approximately equal along both corridors.

In the Paint Branch watershed, headwater streams are impacted by both alternatives, but Corridor 2 would impact lower quality tributaries and fewer linear feet of stream than Corridor 1 (636 vs. 1565).[309] The Upper Left Fork is rated 'Fair' and the upper reaches of the Right Fork offer minimal trout habitat due to sedimentation.[310] The tributaries impacted by Corridor 1 are all rated higher.[311] The bulk of the trout reproduction occurs in the Good Hope Tributary, which is of primary importance to the continued propagation of the species. Wetland impact acreage would be slightly greater with Corridor 1 (1.45 vs. 1.12)[312] and acreage of impervious surface would be greater with Corridor 1 (39.2 vs. 28.9).[313] Corridor 2 would be the preferred route through the Paint Branch watershed.

Corridor 2 would be the preferred route in the Little Paint Branch watershed. Headwater streams are impacted by both alternatives, but Corridor 2 impacts fewer linear feet of stream (3115 vs. 10,118)[314], fewer acres of wetlands (2.16 vs 3.62)[315], and adds much less impervious surface (12.9 vs. 55.7).[316] Corridor 1 results in a significant amount (6600 linear feet) of piped stream in the Tanglewood Tributary between US 29 and Briggs Chaney Road, however this

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[306] *FEIS,* Tbl. IV-55, p. IV-161 (revised).

[307] *FEIS,* p. IV-199.

[308] *See* American Rivers and Sierra Club, *Where Rivers Are Born: The Scientific Imperative for Defending Small Streams and Wetlands* (2003).

[309] *FEIS,* pp. IV-210-213.

[310] *NETR,* pp. II-110 and II-221.

[311] *See supra* § II.A.5.

[312] *FEIS,* pp. IV-210-213.

[313] *FEIS,* Tbl. IV-63, p. IV-202.

[314] *FEIS,* pp. IV-210-213.

[315] *Id.*

[316] *FEIS,* Tbl. IV-55, p. IV-161 (revised).

tributary is rated 'Very Poor' by SHA and has been degraded by the development taking place in the watershed.[317] It is not possible to relocate the Tanglewood Tributary because the profile of the ICC is much higher than the profile of the stream. Just east of Briggs Chaney Road, 1000 feet of an unnamed branch of the Greencastle Tributary would be piped, however, all of this impact would occur in ephemeral stream channels.

In the Indian Creek watershed, Corridor 1 and Corridor 2 have identical alignments east of I-95. West of I-95, however, Corridor 2 has a much greater length within the watershed. Despite this greater length, Corridor 2 has only incrementally greater stream impact (12,776 vs. 11,666)[318] and wetland impact acres (35.45 vs. 32.85)[319], but adds substantially more impervious surface (106 acres vs. 84 acres).[320] On either alternative, the bulk of the wetland impacts occur in wetlands which have formed in abandoned wash ponds, which are low quality resources. Corridor 1 would result in slightly less overall impact within the Indian Creek watershed.

Only Corridor 2 impacts the Rocky Gorge watershed. It would add 52 acres of impervious surface to the watershed, and result in 2.16 acres of wetland, 2.4 acres of floodplain, and 7,510 linear feet of streams being filled.[321] Of primary importance is the impact that a hazardous material spill would have on the drinking water supply of between 550,000 to 650,000 people.[322] Because Corridor 1 does not impact this watershed at all, Corridor 1 would be the preferred alternative with respect to this watershed.

The above comparison, by watershed, of the impacted aquatic resources reveals that there is not a clear preference for an alternative based on an analysis of aquatic impacts alone. The 404(b)(1) Guidelines indicate that "no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences".[323] Consequently, the choice of a Least Environmentally Damaging Practicable Alternative does take into consideration the other environmental impacts of Corridor 1 and Corridor 2.

In making a LEDPA decision, the Corps considered and the Guidelines direct that there are other factors, in addition to aquatic impacts, that are to be considered.[324]

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[317] *NETR*, pp. II-236-239.

[318] *FEIS,* Tbl. IV-65, pp. IV-210-213.

[319] *Id.*

[320] *FEIS,* Tbl. IV-55, p. IV-161(revised).

[321] *FEIS,* pp. IV-146 and 161 (revised) and *FEIS,* pp. IV-210-213.

[322] *FEIS*, p. II-68.

[323] 40 C.F.R. § 230.10(a) (2005).

[324] 40 C.F.R. § 230.5 (2005).

E. Evaluation of Other Significant Adverse Environmental Consequences[325]

The following factors were considered in the comparison of impacts of the Build alternatives on the natural environment:

1. East of MD 97, Corridor 1 results in more impact to parklands.

The park resources affected by Corridor 2 are confined to a small sliver on the edge of the Hampshire Greens Golf Course (impacting 0.1 acres), whereas Corridor 1 goes through Layhill Park (impacting 2.5 acres) and through the heart of the Northwest Branch Park (impacting 45 acres) and Paint Branch Park (impacting 11.1 acres, which includes the post FEIS refinements), severing a very wide portion of these parks.[326] In addition to the direct impacts, the proximity impacts (visual, noise, and air quality impacts) extend for a considerable distance from the highway right-of-way. The physical presence of the highway cutting across Northwest Branch Park and Paint Branch Park would detract from the passive recreation function and wildlife habitat value of those parklands, particularly for birds that qualify as forest interior dwelling species (FIDS), as discussed below. Many tree specimens of local significance would be destroyed which qualify the parklands for County designation as Best Natural Areas or Biodiversity Areas. While Corridor 1's park impacts have been reduced by employing extremely long and high bridges, Corridor 1 clearly has a much greater impact to parkland than does Corridor 2.

2. East of MD 97, Corridor 1 results in greater impact to forests, FIDS habitat, vernal pools, County Champion tree species, and rare/threatened/endangered species.

Forest loss east of MD 97 would amount to 591 acres for Corridor 1 and 470 acres for Corridor 2.[327] More of the forest impact on Corridor 1 is within parklands, and has higher value due to the fact that it is protected and is part of a much larger forest ecosystem. Similarly, the FIDS habitat loss east of MD 97 is much greater along Corridor 1. Corridor 1 would directly impact 67.3 acres of FIDS habitat, and indirectly impact an additional 165.5 acres.[328] Corridor 2 would directly impact only 16.2 acres of FIDS habitat, and indirectly impact an additional 36.1 acres.[329] The FIDS habitat impacted by Corridor 1 is also more significant because it is protected by being contained within parklands, while much of the FIDS habitat impacted by Corridor 2 is proposed

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[325] 40 C.F.R. § 230.10(a) (2005).

[326] *FEIS,* pp. V-79 and V-82, with post-FEIS refinements. Note: 32.3 acres of the 45 acres impacted in Northwest Branch Park are attributable to the incorporation of Northwest Branch Option A, which departs from the highway reservation through the park in order to avoid high quality natural resources in the floodplain of Northwest Branch.

[327] *FEIS,* Tbl. IV-73, pp. IV-251-252.

[328] *FEIS,* pp. IV-259-262. Indirect impact includes interior forest converted to edge and fragmented parcels no longer suitable as FIDS habitat.

[329] *Id.*

for development. Much of the habitat that would be lost within the stream valley parks that are impacted by Corridor 1 is identified on DNR's Green Infrastructure Program, either as a habitat hub or a corridor. While the right-of-way, and an adjacent band impacted by proximity effects, would suffer reduced function as a habitat hub, the habitat corridors along the stream valleys would be maintained due to the provision of long and high bridges throughout the parks. Along both corridors, careful consideration by the study team resulted in the provision of bridges or large culverts to accommodate deer passage. Corridor 1 would impact 5,749 square feet of vernal pools compared to 2,095 square feet for Corridor 2.[330]

Corridor 1 would destroy 6 county champion trees versus none on Corridor 2,[331] as follows:

In Northwest Branch watershed:	
umbrella magnolia (Magnolia Tripetala)	11.9" dbh
Norway spruce (Picea abies)	39.1" dbh
American chestnut (Castanea dentata)	12.9" dbh
bitternut hickory (Carya cordiformis)	36.5" dbh
In Little Paint Branch watershed:	
bur oak (Quercus macrocarpa)	38.3" dbh
chestnut oak (Quercus prinus)	51.2" dbh

Neither corridor is expected to adversely impact any federally listed threatened or endangered species. Corridor 2 would impact some small populations of the State-threatened halberd-leaved greenbrier (along Fairland Option A), but the State-threatened featherbells would be avoided through Spencerville.[332] Corridor 1 could potentially impact the State-threatened comely shiner, a fish that was observed during project studies, or has been previously reported, in the North Branch Rock Creek, in the Northwest Branch (just below Bonifant Road), and in the Greencastle Tributary to Little Paint Branch.[333] Where Corridor 1 and Corridor 2 traverse the same alignment east of I-95, a population of halberd-leaved greenbrier and State-endangered rough-leaved aster in wetland 6J were avoided through an alignment shift. This habitat is being protected through a conservation easement.[334] Corridor 1 would impact more known populations of plant species that are important at the County level than would Corridor 2.

3. Corridor 2 would impact the Rocky Gorge watershed and could potentially impact the drinking water supply of the reservoir.

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[330] *FEIS*, Tbl. IV-77, p. IV-281.

[331] *FEIS*, p. IV-265-266.

[332] *FEIS*, p. IV-290.

[333] *FEIS*, pp. IV-199 and 202.

[334] *See* Special Condition number 12 of the Corps permit issued herewith.

The guidelines require permitting agencies to consider impacts on municipal water supplies.[335] The Burtonsville Option A of Corridor 2 would cross two unnamed tributaries to the Rocky Gorge Reservoir. Approximately 12,300 linear feet (2.33 miles) of Burtonsville Option A would be located within the reservoir watershed.[336] The Washington Suburban Sanitary Commission (WSSC) already experiences a number of concerns regarding the current raw water quality in their Patuxent reservoirs including concerns with algae, taste, color, turbidity, and odor related to the build-up of nutrients from non-point source pollution.[337] Also, the chlorination process can form disinfection by-products that have been found to be related to increased incidence of some types of cancer.[338] Standards for disinfection by-products were first established in the 1996 amendments to the Safe Drinking Water Act. The upcoming Stage 2 Disinfection By-Products Rule will be difficult and costly for WSSC to comply with, and may involve pre-treatment of the water to remove the compounds that are precursors to the formation of disinfection by-products.[339] These precursors are naturally occurring, and they become more prevalent from ever-expanding non-point sources of nutrient enrichment. The Stage 2 Rule has increased the concern for protecting the source water quality to the greatest extent possible. While highway runoff may not be a significant contributor of organic nutrients, the concentration of this runoff at one or two stormwater management pond outfalls can produce erosive velocities that are sufficient to scour the banks of streams, releasing nutrients that have been bound to the soil particles. The existing streams in the Patuxent watershed are steep gradient and already exhibit advanced bank erosion in the lower reaches, which would be exacerbated by the runoff from ICC Corridor 2.

Additional sedimentation is also a concern to WSSC. The Rocky Gorge Reservoir is losing about 0.17% of its capacity each year due to sedimentation. One of the three sluice gates at the T. Howard Duckett dam is already non-operational due to silt buildup.[340] Another direct impact of highway runoff on the reservoir would be the additional chlorides from de-icing operations on the ICC. These are not removed by standard stormwater management techniques. The Rocky Gorge Reservoir has only moderate natural flushing because only 10.3 MGD is required to be passed over the dam. Additional salt concentration could increase the required treatment costs to address the corrosiveness of the treated water.[341]

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[335] 40 C.F.R. § 230.10(c)(1) and 40 C.F.R. § 230.50 (2005).

[336] *See NETR*, Fig. II-F-5, and *FEIS*, Vol. 2, App. A, Plates 70, 71, & 77.

[337] *FEIS*, p. II-70.

[338] EPA, *Proposed Stage 2 Disinfectants and Disinfection Byproducts Rule Fact Sheet*, EPA 815-F-03-006 (July 1999).

[339] *Comparative Water Resources Hazard Assessment*, prepared by the Maryland State Highway Administration (2005) (hereinafter *CWRHA*), at page 21.

[340] *CWRHA*, p. 16.

[341] *CWRHA*, p. 23.

In March 2005, EPA published new guidelines titled "State and Federal Source Water Assessment and Protection."[342] This guidance is a result of Section 1453 of the 1996 amendments to the Safe Drinking Water Act (SWDA). Section 1453 encourages decision-makers to recognize that source water protection is equally important to physical treatment. It also requires that a SDWA-delegated state must institute a source water assessment and protection program. In June 2004, MDE published a Source Water Assessment for the Patuxent Reservoirs.[343] This document identifies the existing water quality issues facing the Rocky Gorge and Triadelphia Reservoirs and recommends measures to protect the source water quality. All of this recent attention has sharpened the focus on protecting the sources of drinking water.

The greatest concern for constructing a highway in the watershed of the Rocky Gorge reservoir deals with the potential for a spill of hazardous material as a result of a tanker truck accident. SHA has computed the probability of a major spill on ICC Corridor 2 as one incident in 20 years.[344] While the probability of a spill is relatively low, the consequences would be great. If WSSC were forced to close the reservoir, the only other source of drinking water for the 550,000 to 650,000 customers who depend on the reservoir would be the Potomac River, which, depending upon the time of year, may not meet the demand, since it is already the primary drinking source for approximately one million other WSSC customers.[345] Construction of a spill containment system at the stormwater management facilities on Corridor 2 would not ensure total capture of a spill due to the time lag between the spill and activation of shutoff valves. Putting the reservoir at risk by constructing a major highway in its watershed would be contrary to the recent emphasis being placed by state and federal agencies on source water assessment and protection.

4. Neither Corridor would substantially impact water-based recreation.[346]

The streams throughout the study area provide opportunities for recreational fishing. Trout are stocked in Lake Needwood, Northwest Branch, Little Paint Branch, and in the Patuxent River below the Rocky Gorge Reservoir. Documented gamefish include smallmouth and/or largemouth bass in Lake Needwood, Northwest Branch, Little Paint Branch, Indian Creek, and inn the Patuxent River below the reservoir; chain pickerel in Indian Creek; and perch in the Patuxent River below the reservoir.[347] The Paint Branch has catch-and-release restrictions for the wild brown trout, but the decline in fish population has been accompanied by a decline in fishing. The long bridges in parklands would facilitate access to the streams for fishermen. The proposed park-and-ride lot at Md 182 would provide parking convenient to Northwest Branch. Any boating

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[342] *CWRHA,* p. 19, *referring to,* U.S. Environmental Protection Agency, Office of Water, *State and Federal Source Water Assessment and Protection* (EPA-816-R-05-001) (March 2005).

[343] Maryland Department of the Environment, *Patuxent Reservoirs, Tridelphia and Rocky Gorge, Source Water Assessment for WSSC Patuxent Water Filtration Plant* (June 2004).

[344] *CWRHA,* p. 11.

[345] *CWRHA,* pp. 1 and 3.

[346] 40 C.F.R. § 230.52 (2005).

[347] *FEIS,* pp.II-72-82.

opportunities that currently exist in Lake Needwood would be unaffected by either Corridor of the ICC and the ICC would not be visible from the lake.[348]

The Rocky Gorge reservoir allows boating by WSSC permit, with access limited to canoes, kayaks, and boats with electric motors. None of the three boat ramps would be affected by either Corridor of the ICC.

Neither corridor (assuming the preferred combination of options) would have a substantial impact on water-based recreation.

5. Corridor 1 would be constructed in the vicinity of the Good Hope Tributary, the primary trout-spawning stream for the entire Paint Branch brown trout resource.

According to the 404(b)(1) Guidelines the permitting agency must consider the effect of the discharge on life stages of aquatic life and other wildlife dependent on the aquatic ecosystem as well as the loss in diversity, productivity and stability in fish habitat.[349] Corridor 1 would be constructed in the watershed of the Good Hope Tributary, and would cross the tributary on structure. It would also cross the Gum Springs Tributary and Paint Branch mainstem on structure. The construction of the ICC could cause concerns for the trout stream related to thermal impacts, additional impervious surface, and sediment releases during construction.

The Good Hope is currently suffering from several man-induced changes in the quality of the habitat. On several occasions during each summer, the stream temperature of the Good Hope exceeds 68 degrees Fahrenheit, which is the MDE standard for Use III streams.[350] This is considered the temperature at which the trout experience a stressful environment. The stream does not currently experience prolonged periods above 68 degrees Fahrenheit, due to the fact that springs discharge cool ground water to the stream, there is a forest canopy shading the stream, and all new construction is required to comply with MDE's stormwater management practices which are designed to minimize the thermal effects of stormwater discharges.

The Good Hope Tributary currently has a fairly healthy population of macroinvertebrates which provide a source of food for the trout. Based on a 12 July 2005 conversation between Rob Shreeve, SHA and Charlie Gougeon, the DNR biologist who is most knowledgeable about the conditions of the Paint Branch and its various tributaries, food supply is not currently the limiting factor in the health of the trout stream.[351] The limiting factor currently is the lack of breeding habitat. Trout lay their eggs in gravel/cobble substrate material, but that type of stream feature is

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[348] *FEIS,* p. V-69.

[349] 40 C.F.R. § 230.10(c)(2) and (3) (2005).

[350] *Upper Paint Branch Baseflow and Temperature Monitoring Study Summary,* (Summer, 2004), *FEIS,* Vol. 2, App. D.

[351] E-mail from Robert Shreeve, State Highway Administration, to Paul Wetlauffer, Corps (27 March 2006).

no longer abundant in the Good Hope Tributary. Trout require deep pools and undercut stream banks where they can take refuge from predators (such as blue heron). Undercut stream banks are created by the exposed roots of trees growing along the banks, and may be further enhanced by woody debris that becomes tangled in the exposed roots. Trout will occupy a deep pool located at the end of a riffle, and rise to the surface when they see a food source on the surface.

Consequently, both deep pools and undercut banks are essential components of the trout habitat. As more of the watershed becomes impervious, more rainwater runs off these paved surfaces and enters the streams, causing increased volume and accelerated velocities which lead to bank erosion. When the banks scour, the trees along the banks fall over, destroying the undercut areas where the trout take refuge from predators. As flood waters subside, sediment is deposited in pools and on point bars, filling the big holes where trout feed, smothering the macroinvertebrates on which trout feed, and filling the gravel substrate which is needed to lay their eggs. Although stormwater management ponds are designed to contain and slow the release of stormwater into the stream, the stream habitat continues to be degraded as more of the watershed becomes developed. The runoff from heated impervious surfaces during summer storms leads to an increase in the stream temperature. As more and more episodes of temperatures higher than 68 degrees Fahrenheit occur, living conditions for the trout become stressed, affecting the level of dissolved oxygen, growth, and reproduction.

In addition to increased bank erosion, another impact of impervious surface is a reduction in the amount of rainwater that is able to infiltrate into the ground. Infiltration is essential to recharge the groundwater table. As a watershed becomes more developed and opportunities for infiltration are reduced, the groundwater table drops, and spring seeps dry up. The loss of spring seeps can result in a diminished quantity of base flow in the stream during summer months when there is less precipitation. The loss of the cool water emanating from spring seeps also negatively affects the stream temperature.

It is clear that development is continuing to have an impact on the quality of the trout habitat. In spite of millions of dollars worth of land acquisition by the County Council in recent years, much more development is proposed throughout the Paint Branch watershed, in the drainage areas of all the tributaries. Prior to year 2010, there are 2,650 acres of planned development proposed in the Paint Branch watershed.[352] There are also several large developments planned beyond 2010, including the expansion of FDA Headquarters (831 acres) and a Biotech research park (117 acres), which are not dependent upon the construction of the ICC.[353] There are a number of planned transportation improvements in the watershed, including the widening of MD 198, the widening of Metzerott Road, the US 29 improvements, the I-495 corridor study, and the FDA light rail. This development will continue to degrade the Paint Branch, making it difficult for even the best tributaries to support a trout rebound.

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[352] *SCEA*, p. 137.

[353] *SCEA*, p. 138.

It is apparent from the trout sampling by both DNR and MCDEP that a graph of the population counts would show peaks and valleys from one year to the next.[354] It is also evident that, while there are moderate spikes and dips in the population count, the general trend over the long-term has been a downward one. The trout population reached an all-time low in 2004, as evidenced by the results of MCDEP's 2004 electro-fishing survey which resulted in only 4 adult trout and 3 young-of-the-year at the sampling station on the Good Hope Tributary.[355] While the prolonged drought in the early years of the current decade has no doubt contributed to the drop in population, and the population rebounded slightly in 2005 [356], the habitat is not conducive to a strong rebound, and the habitat is likely to be further degraded as a result of future, proposed development.

It is apparent from the DNR sampling, and it has been verified in several studies conducted by SHA consultants during the 25 years that the ICC has been under study, that the Good Hope Tributary represents the primary hope for the survival of the trout population. The Good Hope is the source of almost all successful reproduction that currently takes place in the Paint Branch stream system. Aside from the fact that measurements of water temperature indicate that the water is cooler in this tributary, it is not known why reproduction is more successful in this tributary. Because the ICC Preferred Alternative would parallel the Good Hope Tributary, and add to the impervious surface in its drainage basin, the ICC study team proposed numerous measures to ensure that the highway won't further degrade the stream.[357] Most of these measures go above-and-beyond established regulatory requirements, and are deemed necessary and appropriate due to the status of this stream system as the only naturally reproducing trout stream in Montgomery County, and out of respect for the combined efforts of local, state, and federal governments over the years to protect and enhance this stream.

6. Secondary and Cumulative Effects - The 404(b)(1) Guidelines require permitting agencies to address the issue of each practicable alternative's impact on the aquatic ecosystem as well as other significant adverse environmental consequences.[358] The following factors were considered in the evaluation of secondary and cumulative effects as the alternatives may have other significant adverse environmental consequences.

a. Projections of secondary development are similar with each alternative, but more of the secondary development is outside the Priority Funding Area with Corridor 2.[359]

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[354] *FEIS*, Tbls. II-14-15, pp. II-78-79.

[355] *FEIS*, Tbl. II-15, p. II-79.

[356] *FEIS*, Tbls. II-14-15, pp. II-78-79 (updated to include fall 2005 data). MCDEP Brown Trout Data from Sampling Stations in Paint Branch,1994-2004[sic].

[357] *See* the Significant Degradation discussion at § III.F *infra*.

[358] 40 C.F.R. § 230.10(a) (2005).

[359] *FEIS*, p. IV-407.

The Corps recognizes that there is some controversy surrounding the projections of future development by the Expert Land Use Panel (ELUP), in particular, that the projections are understated. The SHA could have relied on projections by the Metropolitan Washington Council of Governments or could have convened a group of regional planners. SHA chose the ELUP approach based on its success on other SHA projects.[360] Various land use professionals gave their perspective to the ELUP, including the Maryland Department of Planning (MDP), which is responsible for evaluation of proposed transportation projects for compliance with state "Smart Growth" statutes; the MNCPPC, which is responsible for implementation of the Montgomery and Prince George's County master plans; and the County Councils, who are the final decision-making authorities concerning those master plans. This input, combined with the analytic framework produced by the ELUP, resulted in an estimate of secondary and cumulative effects. It is important to note that the analysis of secondary and cumulative effects is not an exact science.

Two aspects of the ELUP's general results may be surprising to some observers. First, while panel members foresaw different growth patterns under the Build Alternatives than under the No-Build Alternative, the increases with the Build Alternatives were modest. Second, all the panelists foresaw the development impacts of the two Build Alternatives to be quite similar in magnitude and location. These conclusions were largely affected by the County's policy constraints in the vicinity of the corridors and, in particular, the fact that the northern part of the County is seen by County officials as politically unacceptable for development.[361]

The projections of secondary development (from years 2010 to 2030) indicate that 4945 acres of additional secondary development (i.e., in addition to the 2512 acres that would occur under the No-Build scenario) would be expected to occur with Corridor 1 and 5546 acres with Corridor 2, a difference of only 12%.[362] Of greater importance is the location of the induced secondary development. With Corridor 1, 1385 acres of the secondary development would be outside the Priority Funding Area (PFA), but with Corridor 2, approximately 2000 acres would be outside the PFA, a difference of approximately 600 acres.[363] The PFA is the area that each county has designated for concentrating their future growth, primarily because it has the infrastructure needed to accommodate that growth.[364] While either Build alternate would encourage growth outside the PFA, thereby placing fiscal demands on the County to provide the additional infrastructure, these demands would be a little greater if Corridor 2 were selected. It should also be noted that a much greater amount of development is expected to occur outside the PFA between now and year 2010, than would be induced by the ICC. Therefore, the secondary effect of the ICC would add only incrementally to the growth that is already occurring outside the PFA.

[360] *SCEA,* p. 7.

[361] Memo from Sam Seskin, 24 June 2004, to Cathy Rice, SHA.

[362] *FEIS,* p. IV-407. This figure includes the secondary development projected by the ELUP to occur in Montgomery County as well as portions of Frederick County and Howard County.

[363] *FEIS,* p. IV-408.

[364] For limits of PFA, see *FEIS*, Vol. 2, Fig. IV-4.

b. The projection of secondary development that would occur in the watershed of the Rocky Gorge Reservoir is greater with Corridor 2 (approximately 800 acres for Corridor 2 vs. approximately 350 acres for Corridor 1).[365]

The Rocky Gorge Reservoir is a sensitive aquatic resource that provides drinking water to 550,000 to 650,000 customers. As such, it is the most important aquatic resource affected by either ICC alternative. The direct impacts of building Corridor 2 with Burtonsville Option A have been documented above. These impacts would be further compounded by 450 acres of additional secondary development beyond that which would occur if Corridor 1 were selected.[366] Considering that 4551 acres of development is already planned to occur in the Rocky Gorge watershed before the year 2010,[367] with or without the ICC, the additional 450 acres is not a significant increase. The Corps recognizes that forest clearing, additional impervious surface, and more runoff into the stream channels would negatively affect the water quality of the reservoir and potentially increase water treatment costs. The Corps has no control over the zoning decisions that have resulted in 4551 acres of this sensitive watershed being approved for development. However, the Corps has substantial input into the decision on the ICC, and therefore can influence whether or not the watershed is further degraded by the addition of a highway and 450 acres of secondary development that would not otherwise occur. The Corps recognizes the importance of preserving the water quality of the reservoir, and considers the additional 450 acres of secondary development to be a negative impact of Corridor 2.

Conclusion: The Corps finds that the factors considered under the heading of "Secondary and Cumulative Effects" provide a slight preference to the selection of Corridor 1.

7. Impacts to Historic Sites - The following factors were considered in the comparison of impacts of the Build alternatives on historic/cultural resources[368]

a. Corridor 1 would result in an adverse effect on two National Register Eligible (NRE)or listed historic sites, while Corridor 2 would result in an adverse effect on 11 National Register eligible or listed sites.[369]

This factor shows a considerable disparity between the two alternatives in their effect on historic structures. The Corps also considered the potential for minimizing these adverse effects using some of the commonly-applied techniques for minimizing impacts to historic properties,

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[365] *SCEA*, p. 65. Projections of secondary development in Rocky Gorge watershed include the Burtonsville area (292 acres for Corridor 1, 685 acres for Corridor 2) and the Laytonsville area (61 acres for Corridor 1 and 110 acres for Corridor 2).

[366] *Id.*

[367] *SCEA*, p. 201 and Fig. 16, sheet 2 of 2.

[368] 40 C.F.R. § 230.54 (2005).

[369] *FEIS*, p. IV-108-124.

such as landscaping, noise walls, alignment shifts, and depressing the profile. Even with consideration of such measures, it would not be possible to minimize the adverse effects of Corridor 1 on Amersley, given its proximity to the proposed relocation of Whitehead Road; or the Free Methodist Church Camp Meeting Ground, without an alignment shift that results in a severe community impact of 14 additional residential displacements; or the Columbia Primitive Baptist Church, given its proximity to the proposed interchange at US 29.

b. Corridor 2 would substantially change the rural character of the area through which it passes, diminishing the setting of the historic sites.

Most of the National Register eligible or listed historic sites that were identified in the ICC study area are located in the vicinity of Corridor 2. As was previously stated, the area's historic resources are linked to its agrarian past, including the area's earlier association with the Quakers. Some of the historic farmsteads have been restored by private interests (such as Edgewood II, which is now a bed and breakfast, and the Spencer/Carr barn which has been restored by the church that owns it) or have been purchased by the County (Woodlawn and the James Holland House & Store). With the exception of Edgewood II, these resources retain a sizable tract of undeveloped land that enhances the agrarian context of the sites. Corridor 2 would result in the corridor becoming more suburban, which would alter the rural, agrarian character of the area, diminishing the setting of the historic sites. In 1996, the Maryland General Assembly passed a bill entitled "Heritage and Preservation Tourism Areas" which is designed to stimulate economic development through tourism while promoting preservation of historic areas and areas of natural scenic beauty. The Maryland Heritage Areas Authority, an independent governmental unit, was created to oversee this initiative. Montgomery County's component of this effort is known as the Montgomery County Heritage Initiative, and is devoted to preserving and showcasing the County's significant historic and natural resources. The Montgomery County Heritage Initiative has defined three thematic clusters centered in various parts of the County. The "Underground Railroad and Quaker Cluster" encompasses the eastern portion of Montgomery County, the same area that would be traversed by Corridor 2. A major freeway and its associated secondary development would certainly detract from the agrarian context of the historic sites and diminish their value as tourist destinations.

Conclusion: The Corps finds that the consideration of this issue favors the selection of Corridor 1.

F. Significant Degradation

The 404(b)(1)Guidelines require that no discharge of dredged or fill material shall be permitted which will cause or contribute to significant degradation of the waters of the United States. In determining the LEDPA the Corps has evaluated each of the Build Alternatives based on their potential for significant degradation. In particular, the Corps has considered whether the construction of the ICC parallel to the Good Hope Tributary to Paint Branch, with crossings of the Good Hope Tributary, Gum Springs Tributary, and the mainstem of Paint Branch, would result in significant degradation of the trout resource. Included in this analysis is an assessment of the

current condition of the habitat; a discussion of how temperature, impervious surface, and sediment affect the trout; and the commitments SHA is making to ensure the highway doesn't further degrade the trout stream.

Throughout the duration of this study process, many different options to protect and improve the stream have been explored. The following measures are being implemented so that the highway project will not result in significant degradation of the trout stream.

1. As mandated by a special condition #15 of the Corps permit, no highway runoff will be permitted to be discharged to the Good Hope or Gum Springs Tributaries. In order to make this possible, the profile of the ICC was adjusted to create a single high point in the profile. Runoff from the west side of this high point will drain into the Northwest Branch watershed and the runoff from the east side of the high point will drain into the watershed of the Paint Branch mainstem. Even the rainwater that drains off the deck of the bridges over the Good Hope, Gum Springs, and Paint Branch will be precluded, by special condition of the Corps permit, from being discharged into the Good Hope or Gum Springs Tributaries. By precluding the possibility of any runoff being discharged to the Good Hope and Gum Springs tributaries, the Corps permit is ensuring that no heated stormwater from the ICC will enter these streams. Thus the highway will not give rise to a direct impact on the temperature of the streams where the majority of the trout reproduction occurs.

Secondary impacts on temperature can also occur when additional impervious surface causes a diminution of groundwater recharge, with a related lowering of the groundwater table, and a corresponding drop in spring seep discharges and reduced base flow. To preclude this from happening, the Corps is requiring, as special condition # 19 of their permit, that infiltration practices will be provided to the extent mandated by MDE's 2000 Maryland Stormwater Management Regulations.[370] These regulations require the installation of a sufficient number of infiltration structures and grassed channels to mimic the preconstruction infiltration rate. The soils within the Paint Branch watershed are suitable for infiltration devices. The number of such structures and their location will be determined during final design. By special condition #19 of the Corps permit, the SHA will be required to also capture and infiltrate the rainfall that runs off the vegetated fill slopes along the east bound lanes of the highway embankment, to ensure that this water does not increase the volume of water conveyed in any of the natural drainage swales that currently exist at the base of the plateau, or lead to erosion of those channels.

A comment was received that the diversion of some of the rainfall from the Good Hope watershed to Northwest Branch could have a negative effect by reducing either storm flows or base flows in the Good Hope.[371] The ICC pavement comprises approximately 2% of the total

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[370] MD. CODE REGS. 26.17.02 (2000).

[371] Letter to Nelson J. Castellanos, FHWA from David Dunmire, Eyes of Paint Branch, (23 March 2006) at issue 24.

watershed of the Good Hope an d approximately 1% of the total watershed of the Gum Springs.[372] Base flows should not be substantially affected due to proposed infiltration measures and due to the small percentage of each watershed's rainfall that is being diverted. Storm flows would be reduced, but the amount of reduction in storm volume would not be substantial, and may even prove beneficial considering that it would offset some of the expected increase in storm flow that will be generated by future residential development in these watersheds. The portion of the highway runoff that is diverted to the Northwest Branch watershed will be treated for quality management in a grassed swale that is being constructed to transport this runoff, and for quantity management in a detention basin, prior to release into Northwest Branch, thereby minimizing any negative effect of this diversion on the Northwest Branch. Also, based on its MDE stream classification, the Northwest Branch is not as temperature sensitive as the Paint Branch.[373]

2. Stormwater coming off the ICC pavement that will ultimately drain to the Paint Branch will be contained, and treated in a linear stormwater management system running along the median and shoulders of the highway, as required by special condition #14 of the Corps permit. Small basins constructed every few hundred feet will capture the runoff from the first 1.5 inches of rainfall coming off the pavement, and filter the organics, sediments, and attached pollutants. This will exceed the requirement of MDE's 2000 *Maryland Stormwater Management Regulations*, which require treatment of the runoff from the first 1.0-inch of rainfall. Some cooling will also take place as the water passes through the filtration basins. The water that is collected at the exit end of the filtration process will be directed to underground chambers that will detain the water for 12 hours, as required by MDE's 2000 Maryland Stormwater Management Regulations. The underground detention chambers will ensure further cooling of the runoff prior to discharge to a stream, and because the underground chambers will be constructed within the highway embankment, they will reduce the need for further encroachment into forests and parkland. In addition, inlets along the highway will be designed to capture any water that exceeds the capacity of the filtration basins, and these inlets will direct additional runoff to the underground chambers, so that, altogether, the runoff from the first 2.6 inches of rainfall will be managed for quantity, consistent with MDE's 2000 Maryland Stormwater Management Regulations. The treated water will eventually be discharged into the Paint Branch mainstem. The detention system will ensure that there will not be a significant impact on downstream flows at the discharge point. This linear stormwater management system is estimated to cost an additional $5 million per mile, and it would be used in both of the Use III watersheds (North Branch of Rock Creek and Paint Branch) that are impacted by Corridor 1.

3. As required by special condition #18 of the Corps permit, the runoff from the first one-inch of rainfall from the MCDPWT maintenance depot would also be diverted to the Northwest Branch watershed. This diverted stormwater will be treated for quality and managed for quantity in the same grassed swale and detention pond that is being constructed to treat the highway runoff

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[372] *FEIS*, p. IV-203. Percentage of imperviousness for the Good Hope increases from 10.4% to 12.3% and for the Gum Springs increse from 15.6% to 16.5%.

[373] The temperature standard for Use IV waters is 75 degrees, as opposed to 68 degrees for Use III waters.

that is being diverted from the Paint Branch watershed. The Good Hope is known to have high concentrations of heavy metals, and as the FEIS indicates, oil and grease, diesel and gasoline fuel, and brake linings are a source of heavy metals, and all of these pollutants would be constituents of the runoff from the maintenance depot.[374] Consequently, this diversion would be expected to result in a reduction in the concentration of heavy metals in the trout nursery. Furthermore, temperature monitoring by SHA has revealed that the average water temperature at the outlet of the maintenance depot stormwater pond is consistently higher than any other area measured within the Good Hope, and regularly exceeds MDE's Use III temperature standard of 68 degrees Fahrenheit.[375] Consequently, the diversion of this stormwater would reduce, below current levels, the amount of heated water that is being discharged to the Good Hope.

4. The crossings of the Good Hope, Gum Springs, and Paint Branch mainstem will be accomplished with bridges. These bridges would completely span the streams, wetlands, and the 100-year floodplain. While any trees in the spanned floodplains would have to be cut down to construct the bridges, the floodplains can be re-colonized with shrub species. Also, because special condition #5 of the Corps permit minimizes the amount of grubbing of tree stumps, most of the stumps would generate new shoots. If a temporary crossing of these streams is needed to facilitate construction equipment access to the site, the temporary crossings would be accomplished with temporary bridges rather than pipe culverts and fill material (as required by special condition #27 of the Corps permit), to avoid impacting the channel banks and bottom. The clearing of trees for the construction of the highway and bridges would result in some loss of nutrient-buffering along the trout streams. However, because the tributary is surrounded by substantial acreage of forested parkland, this loss is expected to have minimal impact on water quality.

5. During construction, SHA will employ a new erosion and sediment control program that is designed to minimize the possibility of sediment releases. This new program will be mandated by special condition #35 of the Corps permit and will be employed throughout the project. SHA will use incentives/disincentives to reward/penalize the contractor for his performance, based on sediment control report cards. Incentives will be paid if the contractor maintains an average rating of 85 or above for the entire quarter, with no D's or F's. A rating of D or lower will result in assessment of fines for every day the project remains out of compliance. If a C rating is issued, the contractor has 72 hours to bring it up to a B rating. Failure to do so within 72 hours changes the C rating to a D rating. If two F ratings are issued, the contractor's superintendent and his environmental manager must be replaced, and are barred from working on any other SHA project for 6 months. The contractor's erosion and sediment control (ESC) manager, ESC Quality Control inspectors, and superintendent must pass the SHA's ESC certification program. There will be an Environmental Management Team assigned to the project, to work with the contractor to ensure that he does not violate the terms and conditions of the environmental permits, including the ESC requirements. An Independent Environmental Monitor will also be employed by SHA

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[374] *FEIS,* Tbl. IV-57, p. IV-174.

[375] *See Upper Paint Branch Baseflow and Temperature Monitoring Study Summary,* Summer, 2004, *FEIS*, Vol. II, App. D.

(as required by special condition #44 of the Corps permit) to monitor the construction and to report any permit non-compliance to the permit agencies. To promote the contractor's cooperation in quickly re-establishing sediment controls that are damaged during storm events, SHA will share in the cost of ESC maintenance after severe storms.

The contractor will be selected using Competitive Sealed Proposals, rather than low bid. This process considers price as well as a presentation on the technical aspects of construction. "Environment" will be the most heavily weighted category within the technical merits portion of the selection process. The bidders will be required to give a technical presentation on how they intend to manage sediment. The bidders will be required to describe how they would build redundancy into the erosion and sediment controls for work within the two Use III watersheds, in accordance with special condition #36 of the Corps permit. One example of redundancy would be a requirement that would reduce the amount of sediment being generated by employing more frequent stabilization of side slopes than is currently required by SHA specifications. A threshold level of acceptability will be established for all rated categories in the technical presentation. Proposals that do not meet the requirements of SHA will not be considered for award of the contract.

These erosion and sediment control measures, and others included as special conditions of the Corps permit, would ensure that state turbidity standards are not exceeded, that the substrate of the stream will not change significantly, that the population of benthic organisms will not be significantly affected, and that the various life stages of the trout will not be significantly affected.

6. Several other unique features were considered but determined not feasible. A deep well that could provide a steady source of cool water to the Good Hope was rejected because no deep aquifer is known to exist in this area. Drawing water from a shallow well would have depleted the spring seeps that already exist. SHA also evaluated refrigeration to provide a continuous release of cold water to the Good Hope. This was not considered practicable for the minimal cooling that could be achieved.

In conclusion regarding the issue of significant degradation, the three damaging effects of highway construction are thermal increases, impervious surface, and sediment releases during construction. SHA has considered measures to eliminate or minimize all three factors in the watershed of the Good Hope Tributary. SHA is going well beyond conventional measures and State standards to ensure that the trout stream is not further degraded. While the trout stream is under considerable stress both from an earlier drought and from existing development, which together have negatively affected the outlook for the long-term sustainability of the resource, SHA has chosen to ignore the stream's decline when making decisions on the cost-effectiveness of the above measures. SHA is incorporating every feasible measure into the highway project to avoid any further contribution to the downfall of the resource.

G. The Least Environmentally Damaging Practicable Alternative Determination

In consideration of the differences between the two alternatives in terms of aquatic impacts, secondary and cumulative effects, historic impacts, and potential adverse environmental

impacts, the Corps considers Corridor 1 to be the Least Environmentally Damaging Practicable Alternative (LEDPA). This is due to several factors. First of all, with Corridor 1, the SHA has gone to extraordinary lengths to avoid impacting the Good Hope Tributary, and has proposed extensive bridging in the stream valley parks that, in the Corps' opinion, will reduce to a minimal level the impacts to the aquatic resources beneath those structures. It is important to note that most of the impacted parklands are natural lands set aside for the protection of stream valleys and wildlife. The long, high bridges across these stream valley parks will minimize the impact to the primary function of these parklands by substantially preserving the aquatic resources, retaining a wildlife corridor along the stream valleys, and preserving opportunities. The Corps acknowledges, however, that the parklands will be severed by the highway thereby reducing the natural resource value (such as FIDS habitat) of substantial park acreage beyond the highway right-of-way, and that the serenity of the park experience will be negatively affected. Second, the emphasis by EPA in recent years to increase awareness of the need to protect source water quality, and the potential significant consequences of a hazmat spill, make the avoidance of the reservoir a high priority. During the course of the study, the Corps was asked a rhetorical question. "Which is more important, the trout stream, or the drinking water supply for 550,000 to 650,000 people?" Because the reservoir serves as the primary water supply for 550,000 to 650,000 residents of Montgomery and Prince George's Counties, the reservoir is more important to the public interest than the trout stream. That does not mean that the potential impact to the reservoir would render Corridor 2 unpermittable if Corridor 2 had been the only available alternative. Nor does it mean that the Corps is dismissing the concerns for the trout stream as less important than the reservoir. The Corps recognizes that SHA has proposed measures that will avoid significant degradation of the trout stream, and has proposed high and long bridges that will preserve the aquatic resources. Such measures enabled the Department of the Interior to find Corridor 1 with Rock Creek Option C and Northwest Branch Option A to be "environmentally acceptable" with respect to its impacts on parklands.[376] In contrast, there are no feasible measures that could be implemented to avoid a significant disruption in the water supply should a hazmat incident occur in the Rocky Gorge watershed. While the risk of a spill is low, the consequences of a spill would be great. Nevertheless, there is no need to subject the reservoir to any risk, or to subject the reservoir to a deterioration in water quality as a result of highway runoff, since an environmentally acceptable alternative exists (Corridor 1) that does not enter the reservoir watershed. Historic impacts considerations also favor the selection of Corridor 1. Therefore, with consideration of the avoidance and minimization measures available on each corridor, the potential impacts to the natural environment associated with Corridor 2 are of greater public concern than those associated with Corridor 1.

H. 404(b)(1) Guidelines Factual Determinations:

The EPA 404(b)(1) Guidelines state that no discharge of dredged or fill material shall be permitted which will cause or contribute to significant degradation of waters of the United

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[376] Letter from Willie Taylor, Director, Office of Environmental Policy and Compliance (24 February 2006).

States.[377] The basis for the Corps' determination that significant degradation will not occur in the Paint Branch trout stream was previously discussed in Section III..F. Given the delicate condition of the wild trout population, the tributaries to the Paint Branch are more susceptible to the impacts of a highway than any other streams in the study area. Therefore, the analysis of significant degradation has focused on the efforts to protect the Paint Branch system. However, the concern for significant degradation applies to all streams, and the factual determinations (below) support the finding that none of the study area streams will experience significant degradation.

The potential short-term and long-term effects of the proposed discharge on the physical, chemical, and biological components of the aquatic environment are discussed below. The 404(b)(1) Guidelines require the decision maker to consider these effects when making a permit decision.[378] Many of these effects are minimized through mitigation or construction techniques that have been mandated by special conditions of the Corps permit.

1. Physical substrate determinations - The project requires the placement of fill in non-tidal wetlands and open water. The discharge of fill material for construction of the roadway and bridge improvements will consist of concrete, clean borrow, excavated earthen material from the surrounding landscape, or clean stone. The placement of the discharge will serve to elevate the bottom contours creating a compacted, dry substrate suitable for the highway grade, bridge pier placement, and associated structures. Movement of the fill is not anticipated once placed and stabilized. The buried wetland will cease to provide any ecological function. A 25-foot limit of disturbance has been established beyond the grading limits.[379] This area will be heavily impacted by construction equipment, haul roads, stockpiles, materials storage, sediment controls, and stormwater structures. Because the wetlands within this zone are expected to be significantly altered, these wetlands are being counted as permanently impacted, and the mitigation package provides sufficient compensatory mitigation to offset these impacts. However, the permittee may attempt to restore these wetlands on site. If the restoration is successful, these areas will be deducted from the mitigation obligation.

In many of the impacted wetlands, a portion of the affected wetland will remain outside the limits of disturbance. Where the remnant was so small, or its hydrology so altered, as to render it incapable of performing its biological or chemical functions, the remnant was also counted as impacted. With most remnant wetlands, the remnant wetland's position in the landscape will enable it to continue to receive hydrology and perform wetland functions such as nutrient and sediment removal, flood storage, and ground water recharge. At some remnant wetlands where culverts are proposed, wetland seeps can provide hydrology to keep the culvert substrate sufficiently moist to support amphibian passage. In response to concerns expressed by the environmental resource agencies, the highway fill constructed in wetland seeps at Station 174

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[377] 40 C.F.R. §230.10(c) (2005); *see also* 40 C.F.R. pt. 230, subpts. C, D, and E (2005).

[378] *See id.*

[379] Special Condition #1 of the Corps Permit, 2005-60011.

and Station 673 will be constructed with spring boxes or rock drainage blankets to allow the seep to continue to emanate from the highway fill (as required by special conditions #2 and #9 of the Corps permit). Remnant wetlands at the top of a cut slope are a particular concern with respect to the possibility of subsurface hydrology being drained from the wetland. By special condition #33 of the Corps permit, the permittee is required to pay careful attention to any cut slopes or ditching adjacent to wetlands, and if necessary, to construct a bentonite-filled trench or undertake other measures to block subsurface flow out of the wetland.

The loss of aquatic functions performed by the impacted wetlands on this project will be offset by the construction of new wetlands. Many of the wetland mitigation sites will be more productive than the wetlands they are replacing. For example, the impact to more than 27 acres of low-value wash pond wetlands will be offset by higher-value emergent or forested wetlands.

2. Water quality, salinity, circulation, fluctuation, and temperature - There are a number of measures being proposed to limit the long-term effects on water quality. The first 1.5 inches of rainfall will be treated for quality control throughout the project. This exceeds the MDE requirement to treat the first 1-inch of rainfall. In the Use III watersheds of Paint Branch and North Branch Rock Creek, the first 1.5 inches will be treated in sand filters, thereby removing much of the particulate matter and any adhered nutrients. In other watersheds, the quality control will be accomplished by directing the water through vegetated swales, consistent with state stormwater management standards. Runoff from the one-year, 24-hour storm event (which in Montgomery County is considered to equate to the first 2.6 inches) will be managed for quantity control using 12-hour detention in Use III and Use IV watersheds, and 24-hour detention in all other watersheds, consistent with state standards. Detention basins also have the capability to remove some nutrients, particularly if the basins contain a fringe of wetland vegetation. No change in odor or taste is anticipated. If flocculents are used in settling basins, their health effects on aquatic and terrestrial fauna will be documented, and they must be approved by MDE prior to use, as required by special condition #37 of the Corps permit.

Nutrients in the water column are particularly problematic when there is a downstream lake. Lakes experience eutrophication when excess nutrients are present. All watersheds in the study area have been shown to have elevated levels of nutrients. The Mill Creek, Rock Creek, and North Branch Rock Creek watersheds would be particularly sensitive to increased nutrient levels because all have a recreational lake downstream of the ICC. (Unlike the concern with Rocky Gorge Reservoir, these lakes are not a source of drinking water). Because sediments commonly bind phosphorus, some additional short-term nutrient loading may occur due to sediment releases, but the sediment releases are expected to be substantially controlled as a result of SHA's restructured erosion and sediment control program. In addition, redundant sediment and erosion controls would be employed in the North Branch Rock Creek watershed, as required by special condition #36 of the Corps permit for Use III waters.

There are not expected to be any temperature increases in the Good Hope or Gum Springs tributaries due to the following factors: no highway runoff will be directed to outfall into either

tributary, the first flush from the Maintenance Depot is being re-directed to the Northwest Branch, and any reduction in spring flow that would normally be associated with increased imperviousness is being offset through infiltration. The temperature of runoff that would be discharged to the Paint Branch mainstem and North Branch of Rock Creek would be attenuated by linear stormwater management and 12-hour detention. There may be some minor thermal increases in other stream systems, but the other streams are not inhabited by cold-water species.

While road salts are a common constituent of highway runoff in winter months, no salt will be able to reach the Good Hope or Gum Springs because no highway runoff will be directed to outfall into these sensitive tributaries. SHA currently employs several strategies for reducing the amount of road salt applied to state roads, including state-of-the-art salt application equipment, pavement temperature sensors, equipment operator training, and identification of sensitive areas such as water supply watersheds where salt application rates present concerns related to water treatment processes. SHA balances the environmental impacts of deicing with costs and public safety.

Neither water quality nor thermal impacts are expected to affect recreational fishing. None of the streams affected by Corridor 1 are used as a source of drinking water. Public recreational lands would be impacted by the physical presence of a highway which would negatively affect the aesthetics and serenity of the parklands. However, impacts to water quality are expected to be so minor as not to affect public enjoyment of the lands. Furthermore, long and high bridges through parklands would enable the parks to continue to be used for passive recreation.

Culverts and bridges will be designed to minimize increases in backwater elevation and downstream velocity, consistent with state standards. The bridges across the mainstem of Rock Creek, North Branch Rock Creek, and Paint Branch, and the bridges across the Good Hope and Gum Springs Tributaries will be accomplished without any discharges of permanent fill within the 100-year floodplain. The crossings of the mainstem of Northwest Branch and Little Paint Branch will result in some floodplain fill, but the impact on flood depths and velocity will be minor, due to the size of the bridges. Except where needed to construct bridge foundations, grubbing of vegetation under these bridges is prohibited by special condition #5 of the Corps permit, in order to minimize the release of sediment and also to accelerate the re-generation of new growth when the bridge is completed. Where streams are culverted, the permittee is required by special condition #3 of the Corps permit to ensure that the design is appropriate for the stream geomorphology, so that downstream scour and channel degradation will be avoided.

3. Suspended particulates/turbidity - When sediments enter a stream, they can destroy or damage fish spawning areas and macroinvertebrate habitat. An accidental sediment release in a stream (e.g., from a failed sediment pond), could clog the respiratory organs of fish and other organisms in their food chain. Many metal contaminants and phosphorus, bound to the small particles, are transported during accidental releases of sediment.

As required by special condition #35 of the Corps permit, the SHA will employ their new

erosion and sediment control program on the ICC. This program is designed to ensure prompt attention by the contractor to any identified defects in the system of controls. To ensure the contractor's continued cooperation, incentives are offered. The contractor will be paid an additional lump sum after severe storm events to help compensate for the damages from storms that could not have been anticipated in the contractor's bid. SHA has recently implemented these measures on other design/build projects and has found that the contractor is more cooperative and prompt in making the needed repairs. A rating of D or F will result in the shutdown of all earthwork activities except erosion and sediment control maintenance, and will result in an assessment of a financial penalty on the contractor by SHA. In the Use III watersheds of Paint Branch and North Branch Rock Creek, redundant controls will be employed both where the sediment is generated and where it is treated and discharged. A menu of suggested techniques will be included in the RFP. Examples of these techniques include, but are not limited to, reducing the amount of earth that can be disturbed at one time, increasing the frequency of stabilization, drawing down the sediment ponds between storm events, and installing secondary controls beyond the silt fence.

By special condition #24 of the Corps permit, stream diversions will be required wherever work is occurring in a stream channel, such as during the construction of a culvert. Furthermore, earthen materials will not be permitted in the construction of stream diversions, stream crossings, or cofferdams, in order to prevent fine sediments entering the streams. While temporary stream crossings are permitted, crossings of the larger streams and the more sensitive streams (such as those inhabited by the comely shiner or brown trout) will be accomplished with temporary bridges rather than culverts and fill. By special condition #25b. of the Corps permit, temporary roadways constructed in wetlands will be required to be stabilized to withstand erosion when subjected to flood flows during a storm event.

SHA will maintain their practice of conducting before, during, and after-construction monitoring of stream chemistry and turbidity. This monitoring requirement is included in SHA's "performance specification," which is a document for interested bidders prescribing how the highway is to be constructed. Discharges from sediment controls into streams must satisfy MDE turbidity standards. Sediment controls will be continuously monitored, including on weekends and holidays, as required by special condition #35 of the Corps permit. SHA is employing an unprecedented level of control on point and non-point sources of sediment to ensure that aquatic life is not harmed by turbidity. It is acknowledged that even with these rigid sediment controls, minor amounts of sediment will escape the project site and enter streams, where it is likely to have short-term effects on turbidity and nutrient enrichment. SHA is also restoring more than 4.5 miles of stream as compensatory mitigation for this project. This restoration will greatly reduce the amount of sediment that is currently entering the streams as a result of bank erosion.

In the Indian Creek watershed, in-stream sediment ponds were constructed many years ago, associated with the mining activity at Konterra. The last in a series of in-stream impoundments resulted in a 35-foot high dam being constructed just west of I-95. Water cascading over the dam has a large amount of energy which has caused considerable bank erosion. In addition, the water from the pond carries suspended sediments that have degraded the aquatic community downstream. The dam will be removed, and a new sediment basin constructed

upstream of the ICC interchange that will treat runoff from the ICC and some areas of the surrounding landscape. Special condition #11 will require SHA to submit plans relating to the dam removal to the Corps for review and approval prior to undertaking work in jurisdictional areas. To slow the release of stormwater, basins will manage runoff from the 10-year storm event in this watershed (in accordance with special condition #13 of the Corps permit), which exceeds MDE requirements.

4. Contaminant determinations - All fill material will be natural earthen material, stone, or concrete, and will be free of contaminants. Several hazardous material sites have been identified in the path of Corridor 1, but these sites will be remediated prior to construction of the highway. The most common treatment strategy is excavation of contaminated soil and transport to an approved off-site disposal facility. None of the soil contaminated by hazardous materials will be used as fill material, nor will it come into contact with streams. There are no acidic soils in the highway corridor.

5. Aquatic ecosystem and organisms - Habitat for benthic organisms will be permanently displaced by culvert construction. Stream relocation, in-stream placement of riprap, and temporary stream crossings will temporarily displace benthic habitat, but the benthic organisms are expected to re-colonize these streams following construction. In-stream discharges of riprap are required, by special condition #7 of the Corps permit, to be buried below the natural invert of the stream, thereby allowing re-colonization of benthic organisms, and avoiding creation of obstructions to fish passage. Helping to offset the impact to benthic habitat, the compensatory mitigation plan addresses restoration of eroding stream banks and unstable reaches in more than 4.5 miles of stream, thereby halting or reducing the deposition of sediment on the benthic habitat.

Some culverts will be several hundred feet long and, due to their length, are likely to create an impediment for fish and amphibian passage, possibly fragmenting existing populations. To make culverts more conducive to passage of aquatic life, the bottom of the culverts must be depressed below the natural stream invert, as per MDE requirements, to promote the establishment of a natural substrate in the culvert. In addition, five culverts are being designed specifically to accommodate small mammal passage, either by including a two-foot-wide dry shelf next to the stream, or by having a second, dry cell constructed in proximity to the wet cell (as per special condition #2 of the Corps permit). Special culverts to accommodate deer passage are being designed at four locations. These culverts will be limited to 280 feet in length, and must have a minimum interior opening of 12-foot by 12-foot (as per special condition #2). In the parks, high and long bridges will be utilized to avoid fragmenting wildlife corridors. Eight-foot high chain link fencing will be used to keep deer from attempting to cross the highway and to funnel them to deer crossing locations. A 1/4-inch mesh hardware cloth will be used along the bottom of the fence to prevent amphibians and small mammals from attempting to cross the highway.

Approximately 6,500 square feet of vernal pool habitat would be lost. At some locations, vernal pools could easily be replaced on-site, and further assessments of potential replacement sites will be conducted during design and construction. Sediment traps could potentially be converted to vernal pools at the completion of construction. Vernal pool construction is also one of the stated goals of the wetland mitigation plan.

Approximately 9 acres of ponds are located within the limit of disturbance, of which only 1.8 acres are under Corps jurisdiction. Some of these are existing stormwater ponds that are being expanded to treat highway runoff. Others are abandoned stormwater ponds constructed as part of the mining operation at Konterra. Special condition #28 of the Corps permit requires the permittee to relocate fish prior to completing any de-watering operations.

Two spring seeps in particular generated considerable discussion among the study team due to the consideration of bridges versus culverts at these locations. The spring seep at Station 174 will be filled, but the opportunity exists to replace this seep in-kind, and on-site. Consequently, the Corps permit's special condition #2 will require in-kind, on-site replacement of this seep, and will require that the highway construction include methods to maintain a spring discharge from beneath the highway fill. In the Paint Branch watershed, a spring seep located behind the Maintenance Depot will be filled. However, as required by special condition #9 of the Corps permit, the permittee must construct the fill in a manner to ensure that the subsurface spring continues to provide a source of cool water to the Good Hope Tributary. The study team recognizes the critical importance that the Good Hope plays as the principal nursery for the brown trout fishery. As previously discussed, the impacts of sedimentation, imperviousness, and thermal loading have all been addressed through special measures, thereby minimizing potential impacts to benthic habitat and the food chain in the trout nursery.

Other wildlife impacts include the loss of breeding habitat for birds that are forest interior dwelling species (FIDS). While most of the FIDS habitat in Rock Creek Park was avoided with the selection of Rock Creek Option C, FIDS habitat would be fragmented in North Branch Rock Creek Park, Northwest Branch Park, Paint Branch Park, and Little Paint Branch Park. The acquisition and transfer to M-NCPPC of the 458.8-acre Casey property would protect 214 acres of existing FIDS habitat, which otherwise would be developable. In addition, with the proposed reforestation of 118 acres on the property, the FIDS habitat acreage would increase, over time, to at least 332 acres.[380] Some of the other proposed replacement park parcels also include FIDS acreage. The park crossings would also displace terrestrial wildlife habitat for resident and transient species. The long, high bridges would minimize the fragmentation effect on the habitat within M-NCPPC parklands. The east-west highway corridor is mostly forested, and is recognized in DNR's Green Infrastructure Program as an important connecting corridor between habitat hubs. Its loss would hinder the ability of terrestrial species with large home ranges, such as deer, to move between large forest sanctuaries, such as from Northwest Branch Park to Paint Branch Park. The number of connecting corridors between the parks are relatively few, but other corridors do exist to connect major habitat hubs.

6. Secondary and cumulative effects on the aquatic ecosystem - A Secondary and Cumulative Effects Analysis (SCEA) was conducted as part of this study. Due to the complexity of the project, an advisory panel, known as the Expert Land Use Panel (ELUP), was selected to identify future land use scenarios since there were differing viewpoints among local jurisdictions, agencies, and special interest groups. The ELUP projected future households and jobs for the No-

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[380] *FEIS,* p. V-63.

Build, Corridor 1, and Corridor 2. Land use scenarios were generated for each of the alternatives, including the No-Build, and maps were generated to highlight areas that could potentially accommodate the ELUP estimates. The maps were then overlaid with environmental resources to assess resource impacts associated with secondary induced growth that might result from the ICC. Cumulative impacts included the induced secondary impacts, plus the impacts of projects in the development pipeline (anticipated to occur by year 2010 and are not dependent on construction of an ICC), the impacts associated with the ICC itself, and the impacts of future development (by year 2030) that was projected to occur without the ICC. It is important to note that the SCEA boundary is much larger than the study area boundary because the ICC's influence on secondary and cumulative development can extend much further than the direct impacts.

The impact overlay identified that 2213 acres of forest, 253 acres of floodplain, 160 acres of wetlands, and 78,80 linear feet of stream could potentially be affected by the induced secondary development of Corridor 1.[381] It should be noted that this is the calculation of the resources that lie within the parcels that are projected to be developed. These resources would not all be destroyed because Montgomery County has stringent development standards for avoidance of floodplains, wetlands, streams, and stream buffers. Through the subdivision approval process, Montgomery County is typically able to require that stream buffers be dedicated as either open space or parkland. In addition, MDE approval is required for all floodplain fills, and Corps and MDE approval is required to impact wetlands and streams.

The cumulative impacts are projected to be 13,578 acres of forest, 1853 acres of floodplain, 903 acres of wetlands, and 458,980 linear feet of streams.[382] The cumulative impacts include the direct impacts of the ICC, the impacts of induced secondary development, and the impacts of development projected to occur without the ICC. Consequently, the cumulative impacts are not attributable solely to the construction of the ICC, as some people commenting on the DEIS have suggested. Only the direct and secondary impacts are attributable to the ICC construction. It is important to note that the above calculation of cumulative impacts represents the amount of those resources that are contained within the parcels that are projected to be developed. Not all of these resources would be destroyed because Montgomery County, MDE, and Corps all have regulations protecting aquatic resources.

Loss of forested land is a significant concern in Montgomery County. Between 1973 and 2000, Montgomery County lost approximately 38% of its forest acreage.[383] Of the 89,000 remaining acres, only 27,000 are protected as part of the County network of stream valley parks. The potential for future losses is, therefore, significant. It is estimated that the cumulative impact to forests could be as much as 13,578 acres of forest within the SCEA boundary between now and 2030.[384] In addition to the loss of terrestrial habitat, the conversion of forests to other land uses

[381] *FEIS*, Tbl. IV-129, p. IV-435.

[382] *Id.*

[383] *FEIS*, p. II-105.

[384] *FEIS*, p. IV-445 and *FEIS*, Tbl. IV-129, p. IV-435.

results in higher quantities of runoff from the land. This will have the effect of increasing the volume of the runoff, as well as compressing the duration of peak discharges, which in turn makes the streams more flashy, resulting in higher, and more-erosive, velocities. In addition, the increase in impervious surfaces associated with development can reduce infiltration of rainfall, resulting in fewer spring discharges. Spring seeps normally have a moderating effect on stream temperature, and help sustain base flows during the summer months when rainfall is typically less frequent. Thus the conversion of forests can raise stream temperature, increase bank erosion, and reduce stream volume, all of which has a negative effect on aquatic organisms. State law now requires the replacement of forest that is cleared for development on an acre-for-acre basis.[385] This will have the effect of significantly slowing the net loss of forest lands. In addition, MDE's stormwater management regulations can help reduce the erosive effects of increased impervious surface.

The biggest concern with respect to secondary and cumulative impacts is in the Paint Branch watershed. Corridor 1 would result in secondary impacts of induced development on 133 acres.[386] The cumulative impacts in the Paint Branch watershed would include 2650 acres of development planned prior to 2010, and another 948 acres planned prior to 2030, which are projected to occur even if the ICC is not constructed.[387] There are several other planned highway projects in the watershed whose impacts are currently unknown including the widening of MD 198, the widening of Metzerott Road, US 29 improvements, the I-495 Corridor Study, and the FDA light rail. The additional impervious surface resulting from this amount of development and new transportation infrastructure would have a detrimental effect on the trout habitat in Paint Branch.

According to the 404(b)(1) Guidelines the permitting authority must consider these secondary and cumulative effects when making a permit decision.[388] It is apparent that most of these impacts are projected to occur even if the ICC is not constructed. Therefore, denying a permit for the ICC would have little impact on reducing the amount of future development that would be expected to occur in the Paint Branch watershed. The Corps also recognizes that this future development, which is not dependent on the ICC, will continue to stress the trout stream, causing increased uncertainty for the future of a self-sustaining trout population in this urbanizing watershed.

In conclusion, the proposed project would not result in significant degradation of waters of the U.S. Furthermore, future development that is not dependent on the ICC, nor caused by the ICC, will continue to degrade the trout stream.

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[385] *FEIS,* p. IV-254.

[386] *SCEA*, p. 142.

[387] *SCEA,* p. 137. *See also SCEA,* p. 138 (adding 831 acres for FDA Headquarters expansion and 117 acres for a proposed Biotech research park).

[388] *See* 40 C.F.R. § 230.11(g)-(h) (2005).

I. 404(b)(1) Guidelines Findings:

1. The Corps finds that on the basis of the 404(b)1) Guidelines the proposed disposal sites for the discharge of dredged or fill material comply with the requirements of these Guidelines with the inclusion of appropriate and practicable discharge conditions of the permit as discussed in the factual determinations.

2. The Corps hereby adopts the avoidance and minimization measures for each disposal site as specified in Appendix M and Appendix H of the FEIS.

3. The Corps finds that the project will permanently impact 43,705 linear feet of federally regulated streams, 44.5 acres of federally regulated wetlands, and 1.8 acres of federally regulated ponds. The project will have temporary impacts of 671 linear feet to streams and 3.01 acres of wetlands.

4. The Corps finds in the matter of:

a. Measures to minimize harm - In consideration of the avoidance and minimization measures already discussed in this document, the compensatory mitigation measures required by the Corps permit, and the many special conditions of the Corps permit that will further restrict discharges of fill in aquatic resources, the project includes all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem.

b. State water quality standards - The project would not result in any violation of state water quality standards. Throughout the project, the first 1.5 inches of rainfall will be treated for quality, which exceeds state requirements. No stormwater outfalls will be directed to the Good Hope or Gum Springs Tributaries. Infiltration will be employed in the Good Hope watershed to recharge groundwater and maintain spring seeps. The first flush from the Maintenance Depot, which frequently exceeds the Use III temperature standard of 68 degrees, will be redirected to the Northwest Branch watershed. Stringent sediment controls will be employed throughout the project, with incentives/disincentives to encourage compliance, and weekly ratings of the contractor's performance. Redundant sediment controls will be employed in all Use III watersheds. MDE has issued a Water Quality Certification for the project.[389]

c. Coastal Zone Consistency - Section 307 of the Federal Coastal Zone Management Act of 1972 requires an applicant for a federal permit or license to certify that the proposed activity is consistent, to the maximum extent practicable, with a State's federally-approved Coastal Zone Management Program. In Maryland, the applicant's certification is contained in the MDE/Corps joint permit application, and the responsibility to make a consistency determination lies with MDE. The State's consistency determination is contained in the MDE Non-tidal Wetlands and Waterways Permit.

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[389] 33 U.S.C. § 1341 (2005).

d. Toxic effluent standards - The project will not violate any applicable toxic effluent standard or prohibition under Section 307 of the Act.

e. Threatened and endangered species - The project will not affect any species listed as endangered or threatened under the Endangered Species Act of 1973 or result in the destruction or adverse modification of critical habitat.

f. Marine sanctuaries - The project will not affect any marine sanctuary designated under the Marine Protection, Research, and Sanctuaries Act of 1972.

IV. Public Interest Finding

When making the determination whether to issue a permit to an applicant, the Corps undertakes a review to determine if issuing the permit would be in the public interest. The regulations provide:

> The decision whether to issue a permit [for the LEDPA] will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest. Evaluation of the probable impact which the proposed activity may have on the public interest requires a careful weighing of all those factors which become relevant in each particular case. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. The decision whether to authorize a proposal, and if so, the conditions under which it will be allowed to occur, are therefore determined by the outcome of this general balancing process. A permit will be granted unless the District Engineer determines that it would be contrary to the public interest.[390]

Furthermore in the public interest review,

> mitigation is an important aspect of the review and balancing process on many Department of the Army permit applications. Consideration of mitigation will occur throughout the permit application review process and includes avoiding, minimizing, rectifying, reducing, or compensating for resource losses. Losses will be avoided to the extent practicable. Compensation may occur on-site or at an off-site location.[391]

A. Community Impacts - The following six factors were considered in the evaluation of community impacts:

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[390] 33 C.F.R. § 320.4(a) (2005).

[391] 33 C.F.R. § 320.4(r) (2005).

1. East of MD 97, Corridor 1 displaces fewer homes (28 vs. 56)[392].

The 56 displacements under Corridor 2 would be as high as 70 if the alignment shift to avoid the Free Methodist Camp Meeting Ground were selected to eliminate a constructive use 4(f) impact. It is noted that the 56 displacements with Corridor 2 assumes incorporation of Norbeck Option A, Spencerville Option B, Burtonsville Option A, and Fairland Option A.

2. Corridor 2 would result in fewer homes within 400 feet of the ICC right-of way.

The number of residences that are impacted by the project is not limited to those that are displaced by the highway. The Corps is giving weight to the fact that residential impacts apply also to those who are left living in immediate proximity to a highway of this magnitude. While being forced to move is a substantial disruption, it is usually a temporary disruption, for which monetary compensation is provided. But those who would be subjected to having an ICC constructed adjacent to their homes are not compensated for any loss in property value or proximity impact, and the impacts caused by the presence of the highway would be permanent. There would be 3660 residential properties within 400 feet of the centerline with Corridor 1, but only 1758 residential properties within 400 feet of the centerline with Corridor 2.[393]

3. Corridor 1 would have a greater impact to minority and low-income communities.

With Corridor 1, 15 residences would be displaced from minority and low-income communities vs. none for the combination of Corridor 2 options selected by the study team.[394] (While SHA does determine which communities qualify as minority and low-income, SHA does not determine the status of each displaced residence.) Also with Corridor 1, more minority communities would be affected by proximity, with the biggest impacts occurring in Longmeade, in Avonshire, and in Tanglewood. Residents of Longmeade living on opposite sides of the highway corridor interact with one another at the shared community recreation facilities. The stark physical presence of the highway with its 12 to16-foot high noise walls will divide the community into two distinct entities. Even though the existence of the Master Plan alignment was common knowledge when the residents moved in, they have become accustomed to the park-like setting within the highway reservation. There is no comparable division of a community along Corridor 2, east of MD 97. Avonshire and Tanglewood, two minority communities in the vicinity of

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[392] *FEIS,* Vol. II, App. A.

[393] *See* e-mail from Michele Jones, McCormick Taylor, to Paul Wettlaufer, Corps, which quantifies this data for Corridor 1 and Corridor 2AX(29 March 2006) (indicating that this would be similar to Corridor 2 with Spencerville B and Burtonsville A).

[394] *FEIS,* p. IV-23.

the Corridor 1 interchange with US 29, are the only communities along either corridor that would be subjected to the visual intrusion of a three-level interchange. The FHWA Record of Decision contains a commitment to screening the view of the interchange using vegetation, noise walls, and earthen berms.[395] Corridor 1 also passes adjacent to the Bailey's Lane minority community on MD 28 and would displace three to four homes from the community.[396]

Corridor 2 would occupy a highway reservation set-aside by the developers of the minority communities of Llewellyn Fields and Hampshire Greens, but would not displace any homes from these communities. Corridor 2 passes adjacent to these communities but does not split them. Llewellyn Fields would be subjected to noise impacts but qualifies for noise walls. Homes in Hampshire Greens are separated from the highway by several fairways of the community golf course, and the homes are too distant from the highway to meet the criteria for consideration of noise abatement. Corridor 2, Spencerville Option B, would also impact the Spencerville Korean Seventh Day Adventist Church and Academy.[397] However, the congregation has outgrown its facilities and was already planning to move to a new location.[398]

4. Corridor 1 would more completely mitigate noise impacts.

All of the noise-impacted communities along Corridor 1 could be protected with noise walls. The small community along Avery Park Drive would be impacted by noise from Corridor 1 but did not qualify for a noise barrier based on cost criteria. However, SHA has agreed to increase the size of the existing community-owned berm between this community and the proposed highway, to shield the community from noise. The Bailey's Lane minority community would not be impacted because Corridor 1 is depressed to pass under MD 28. The townhouses on Dinsdale Drive, in Longmeade, would not be impacted by noise because they are shielded from the highway by a pre-existing earthen berm. The homes along Sherview Lane are not impacted by noise because the alignment is depressed to go under Old Columbia Pike. All the communities adjacent to Corridor 1 that are impacted by noise are eligible to receive noise walls or berms.

On Corridor 2, there would be a few homes in the Norbeck Knolls community, including the Amersley historic site, that would be impacted by noise but would not qualify for a noise barrier based on cost criteria. At the Norwood Village community, both existing MD Route 28 and the proposed ICC pass along the north side of the community. Even if noise walls were built along the ICC, Norwood Village would continue to be impacted by noise from MD 28. Therefore, noise barriers are not

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[395] *FHWA ROD*, Attachment E, p.4, No. 18.

[396] *FEIS,* p. IV-23.

[397] *FEIS,* p. IV-24.

[398] *FEIS,* p. IV-18.

considered effective for this community. With any Spencerville option that connects to Burtonsville A, the small community along Spotswood Drive would not be impacted because Corridor 2 is depressed to pass under MD 650.

The vast majority of homes that are impacted by noise along both alternatives are eligible to be shielded by noise barriers or berms. Because the housing densities are generally higher on Corridor 1, and therefore, the cost per affected resident is therefore lower, barriers and berms are more feasible to construct along Corridor 1 than along Corridor 2. Therefore, the noise impacts would be more completely mitigated with Corridor 1.

5. East of MD 97, Corridor 2 has a greater impact on community cohesion and circulation.

Because most of the communities adjacent to Corridor 1 were constructed after the ICC was placed on the master plan, they were constructed in a manner that could accommodate the proposed highway with minimal disruption to the community. For instance, homes were usually constructed with their back yards abutting the proposed right-of-way, and subdivision streets were constructed to intersect local roads at a sufficient distance from any proposed interchanges. In contrast, the homes along Corridor 2 were constructed long before Corridor 2 was proposed. Consequently, these communities are not compatible with the construction of a new 300-foot wide highway corridor. Many of the neighborhoods would lose a significant number of homes. For many of the residents not displaced, the access to and from their communities would become more circuitous. In some cases, their neighborhood identity would be altered as some residences would become isolated from the remainder of their community by the ICC and access to these isolated homes would only be possible through a neighboring community. Other communities would be required to share a common entrance road, or the entrance to their community would be restricted to a single entrance crossing over the ICC. In several instances, particularly with some of the Spencerville options, access to schools and churches would become more circuitous.

6. Corridor 1 was on the County Master Plan, therefore, the perception by most of the County's residents is that Corridor 1 is less disruptive to their lives because it upholds the Master Plan location for the highway.[399]

The Corps recognizes that Montgomery County has a comprehensive planning process, and the public has come to rely on the Master Plan when making major investment decisions such as the purchase of a home, the location of a business, their place of employment, and their choice of schools. Of course, the fact that the majority of residents along Corridor 1 had the opportunity to be aware of the planned route for the ICC prior to purchasing their homes does not in any way diminish the intensity of their

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[399] The ICC first appeared on the *Montgomery County General Plan* in 1957. *FEIS,* p. S-4.

noise impacts, their air quality impacts, or any other proximity impact associated with the highway. Consequently, the residents along Corridor 1 are no less opposed to the highway being in their backyard than the residents along Corridor 2. Either alternative would have similar proximity impacts within a comparable band-width along the alignment. However, this paragraph is not comparing the proximity impacts to the residents living along the two ICC corridors. This paragraph deals with the expectations of the thousands of other county residents who don't live adjacent to either corridor, but have made investments based on their reliance on the Master Plan. They trust their elected officials and government representatives to uphold the Master Plan so that major changes will not be made that impact the value of previous investments or their quality of life. The Corps has come to understand that many Montgomery County employees and elected officials feel that the Master Plan is inviolable. The fact that a locally preferred alignment has been identified does not exempt the project from the NEPA requirement to explore reasonable alternatives.[400] NEPA, however, requires decision makers to recognize the impacts that occur when pre-existing local plans are altered by an alternative.[401] Both the FEIS and the Corps have done so. The Corps finds that a change in the Master Plan alignment of the highway would have an effect on thousands of residents in the northern part of the County whose quality of life would be affected by a change in the character of their region from rural to suburban. Furthermore, areas which the County has designated for low growth in consideration of their environmental sensitivity would be subjected to greater development pressure if Corridor 2 were selected. Even though Corridor 1 was on the County's Master Plan, NEPA requires the consideration of alternatives to every proposed action, and it is noted that the inclusion of Corridor 2 in the study created a powerful incentive for further reductions in the environmental impacts along Corridor 1.

Conclusion: In consideration of the above analyses, of the six factors considered under the heading of "Community Impacts," the Corps finds that Corridor 1 is slightly less detrimental to the Public Interest.

B. Economic Benefits - The following factors were considered in the evaluation of economic benefits

1. Corridor 2 would generate slightly more jobs than would Corridor 1.

The University of Maryland's *Economic Impact Study of the Intercounty Connector*, prepared under the supervision of Dr. Hani S. Mahmassani, Sept., 2004, concluded that 16,855 jobs would be created with Corridor 2, but only 14,200 with Corridor 1.[402] The analysis of job creation utilized a new approach that was later accepted for publication by the Transportation Research Board, a division of the National Research Council, an independent advisor to the federal government and others on scientific and

[400] 42 U.S.C. § 4332(C)(iii) (2005).

[401] 40 C.F.R. §§ 1502.16 and 1506.2(d) (2005).

[402] *FEIS*, p. IV-91-92.

technical questions of national importance.[403] The Corps recognizes that job creation is important to sustaining the economic vitality of Montgomery County, which is one of the wealthiest counties in the country, and considers this to be an important consideration in making the choice between the alternatives. However, it is noted that the difference in job creation between the two alternatives is not great.

2. Compared to the No-Build Alternate, Corridor 1 would result in a 27% increase in the number of jobs within a 45 minute commute. Corridor 2 would result in only an 18% increase in the number of jobs within a 45 minute commute.[404]

Access to jobs in the design year (2030) is a measure that combines transportation travel time and future study area land use into one measure. The analysis shows that 49,000 more jobs would be accessible within a 45-minute drive if the ICC were located on Corridor 1 as compared to Corridor 2.[405] This difference reflects the different development patterns served by the Corridor 1 location and the lower residential densities in the communities surrounding Corridor 2. Choosing an alignment that best serves the needs of commuters is an important consideration in the decision and this favors the selection of Corridor 1.

3. Enhanced accessibility to BWI Thurgood Marshall Airport was not a consideration in the Corps decision.

Throughout the study process, a perceived advantage that has often been cited by proponents of the ICC is that either ICC Build alternate would make BWI Thurgood Marshall Airport more accessible to air travelers and shippers in the I-270 corridor, enabling them to choose an airport in Maryland over Dulles Airport in Virginia. While the Corps recognizes that it is the function of state government to enhance and promote the economic advantages of their state, and that this often involves competition with neighboring states in attracting new employment or in promoting the growth of regional transportation facilities, the Corps considers the interests of the Chesapeake Bay to transcend this regional competition for airline passengers and cargo. Furthermore, the University of Maryland Economic Impact Study admits that building an ICC would not, of itself, increase freight traffic into and out of BWI Thurgood Marshall Airport. This would be dependent upon improvements in airport infrastructure and the airlines adding routes to more destinations. Consequently, the Corps gives no weight to this desire to entice prospective airline passengers into using an alternative airport, particularly one that would involve more highway driving because it is more distant from the I-270 development corridor.

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[403] *FEIS,* Vol. III, App. R-6, p. 6 of 20.

[404] *FEIS*, p. IV-358.

[405] *FEIS*, p. IV-359.

Conclusion: In consideration of the above analysis, the Corps finds that the economic benefits produce no preference between the two alternatives.

C. Transportation Benefits in 2030 - The following factors were considered in the evaluation of transportation benefits:

1. Corridor 1 has an advantage in travel time savings (based on the results of the *ICC Travel Analysis Technical Report,* SHA 2004)

The Corridor 1 Alternative would generally save travelers more time than the Corridor 2 Alternative, however, both alternatives showed marked improvement over the No-Build Alternative. The study evaluated 110 origin-destination pairs. For 87 of the pairs, the savings in travel time with Corridor 1 were not substantially different than the savings in travel time between the same points with Corridor 2.[406] However, for the remaining 23 pairs, there was a substantial (i.e., 5 to10-minute) difference between the two alternatives, with Corridor 1 producing the greater time savings.[407] The University of Maryland's Economic Impact Study attempted to place a dollar value on this disparity in travel time savings, by assigning appropriate time valuation parameters to the various user classes (by trip mode and purpose). Considering only the travelers whose trip either begins or ends in the ICC study area, the annual travel time savings in 2010 are expected to be $203 million with Corridor 1 versus $171 million with Corridor 2.[408] By year 2030, the annual savings are expected to be $250 million with Corridor 1 versus $209 million with Corridor 2.[409]

2. The two Build Alternates function approximately equally in terms of the number of hours that the 50 evaluated intersections would be at, or exceeding, capacity, but both alternates perform better than the No-Build Alternate.

In the design year (2030), with Corridor 1, the cumulative hours of operation at, or above, capacity, at all 50 intersections, over the course of a day, would amount to 165 hours.[410] With Corridor 2, the total is 163 hours.[411] For the No-Build Alternate, the total is 217 hours.[412] This factor shows that there are substantial benefits to building an ICC, but does not help in choosing between the two Build alternatives.

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[406] *FEIS,* p. VII-31.

[407] *Id.*

[408] *FEIS,* p. VII-41.

[409] *Id.*

[410] *FEIS,* p. IV-384.

[411] *Id.*

[412] *Id.*

3. Corridor 1 has a small advantage in terms of intersections improved on the local road network.

Of the 27 intersections that are operating at level-of-service (LOS) E or F in the morning peak hour under the No-Build alternative, Corridor 1 is expected to improve the Volume/Capacity ratio substantially (i.e., by 10% or more) at 10 of those intersections.[413] Corridor 2 is expected to improve 6 intersections substantially.[414] While some of the intersections experiencing a 10% improvement are improving from a severe LOS F to a somewhat less severe LOS F, the traffic savings would still be measurable, perhaps as a reduction in the time spent in delay at that intersection, as well as a reduction in the capital costs that would be needed to further improve the intersection.

4. The two Build Alternates are approximately equal in terms of accident rates on the study area road network, but both alternates result in lower accident rates than the No-Build Alternate road network.

With Corridor 1, the composite accident rate on all the study area roads, including the ICC, would be 1.61 accidents per million vehicle miles traveled (MVMT).[415] With Corridor 2, the composite accident rate on all study area roads, including the ICC, would be 1.63 accidents per MVMT.[416] With the No-Build Alternate, the composite accident rate on all study area roads would be 1.95 accidents per MVMT.[417] This factor shows that there are substantial safety benefits in building an ICC, but does not help in choosing between the two Build alternatives.

5. Corridor 1 would carry a greater volume of traffic than Corridor 2.

The projected average daily traffic (ADT) for Corridors 1 and 2 were compared using a screenline analysis.[418] Each screenline represents a north-south line across the study area. The screenlines that are parallel to US 29, I-95, and US 1 show higher ADT on Corridor 1 than Corridor 2, with the greatest disparity at the screenline that is drawn parallel to I-95, a difference of 35,000 vehicles (Corridor 1 would carry approximately 80 percent more vehicles than Corridor 2 across this screenline). This difference is the result of Corridor 1 being more accessible to a greater number of vehicles because it is located in the more densely developed portion of the county.

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[413] *FEIS*, p. IV-370.

[414] *Id.*

[415] *FEIS*, Tbl. IV-116, p. IV-386.

[416] *Id.*

[417] *Id.*

[418] *FEIS*, Tbl. IV-103, p. IV-352.

6. Corridor 2 would result in slightly more new transit riders than would Corridor 1 (4900 vs. 4400), but Corridor 1 would result in more total transit users (new and current transit users) than Corridor 2 (11,500 vs. 9,100).[419]

Since Corridor 2 would be located in areas not currently well-served by transit, there would be a greater opportunity for people that do not currently use transit to do so under this alternative. However, even with the influx of new transit users, the total attraction of transit users (new and current) would be greater with Corridor 1, due to the fact that it passes through more densely developed communities. This factor has little bearing on the selection of a preferred alternative since transit represents such a small portion of the total number of ICC users.

7. The two Build Alternates are approximately equal in terms of the miles of existing roads that would experience a substantial (i.e., greater than 10%) reduction in average daily traffic volumes. Both alternates represent an improvement over the No-Build Alternate.

With Corridor 1, approximately 50 miles of the existing road network would experience a substantial reduction in traffic volumes in the design year (2030), while 12 miles of the existing road network would experience a substantial increase in traffic volumes.[420] With Corridor 2, approximately 50 miles of the existing road network would experience a substantial reduction in traffic volumes, while 14 miles of the existing road network would experience a substantial increase in traffic volumes.[421] Both alternatives relieve a substantial number of existing roadway miles compared to the No-Build Alternate, and demonstrate one of the advantages of building an ICC, but offer little help in choosing between the two Build alternatives.

8. Corridor 2 would result in fewer vehicles using the local road network.

The FEIS presents the numbers of vehicles crossing various north-south screenlines with each of the Build alternates.[422] Because more vehicles would be using the local road network if Corridor 1 were constructed, the FEIS concludes that Corridor 1 better facilitates the motoring public's desire to travel and, therefore, better accommodates mobility.[423] One of the purposes of the ICC is to reduce congestion on the local road network by diverting vehicles from the local roads to the ICC. Corridor 2 would result in fewer vehicles using the local road network.[424] SHA argues that this is due to the fact that

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[419] *FEIS*, Tbl. IV-107, p. IV-361.

[420] *FEIS*, Vol.2, Fig. IV-11 and p. IV-362.

[421] *FEIS*, Vol. 2, Fig. IV-12 and p. IV-362.

[422] *FEIS,* Tbl. IV-103 p. IV-352.

[423] *FEIS,* p. IV-352.

[424] *See generally FEIS,* pp. IV-351-354.

Corridor 2 does not as readily accommodate the public's desired travel patterns and therefore discourages longer trip-making. The Corps cannot characterize, as an advantage, the fact that a highway alternative generates more miles of travel on the roads that it is intended to relieve. The Corps does not agree with the conclusion of the FEIS that this analysis supports selection of Corridor 1. The Corps considers this issue to be a factor in favor of the selection of Corridor 2 because fewer vehicles would be using the local road network with Corridor 2.

9. The loss of Norbeck Road Capacity under Corridor 2 does not constrain the local road network in the design year.

The FEIS concludes that building the ICC on Corridor 2 would provide less overall roadway capacity in the transportation network (i.e., the ICC plus local roads) due to the fact that Corridor 2 is superimposed on the recently constructed Norbeck Road Extended.[425] The Corps did not attribute any significance to this factor. While the ICC would eliminate the two lanes of existing local highway capacity that is currently provided by Norbeck Road Extended, requiring local traffic to use Ednor Road & New Hampshire Avenue, or Norwood Road & New Hampshire Avenue, as alternate routes, the year 2030 traffic projections for Corridor 2 do not show this resulting in unacceptable congestion on Ednor Road or Norwood Road,[426] nor would these roads show a substantial traffic increase compared to the No-Build scenario. In fact, Ednor Road is substantially improved as compared to the No-Build scenario. [427] In making a case that this factor is a detriment of the selection of Corridor 2, the FEIS indicates that residents of this area would be forced to choose between using the much slower local road system, or paying a toll to use the ICC.[428] However, this is the same choice that any motorist who contemplates using any portion of the ICC would have to make. The Corps will concede that the residents of this area who choose to use the local road network, rather than pay a toll, would have to use Ednor or Norwood Road, which are inferior in design, access control, and travel speed to the local road that they currently utilize, Norbeck Road Extended.

Also, although the Corps acknowledges that the traffic projections for Corridor 2 do show unacceptable congestion on the north-south arteries of New Hampshire Avenue and MD 182, this can be attributed to the fact that interchanges are located on these north-south roads, and greater traffic is using these roads in an attempt to access the ICC (a phenomenon that happens with Corridor 1 also). The analysis of this issue had no influence on the Corps decision.

Conclusion: In consideration of the above analysis under the heading of

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[425] *FEIS,* p. VII-34.

[426] *FEIS,* Tbl. IV-108, p. IV-363.

[427] *FEIS,* Vol. II, Fig. IV-12.

[428] *FEIS,* p. VII-35.

"Transportation Benefits in 2030", the Corps determines that these factors result in a determination that Corridor 1 is slightly more favorable to the public interest.

D. Benefits of the Preferred Alternative/LEDPA/Corridor 1.

The project would result in transportation and economic benefits. The Corps is not an expert in the highway traffic analyses or the economic analyses that were used to translate these benefits into dollar values, and defers to the expertise of the lead federal agency, FHWA, regarding these matters.

1. Safety: The residents of the study area would have a freeway to access for at least a portion of their trip. This would greatly improve the safety of travel in the study area. This would result in a reduction in conflicts between through-traffic (such as commuters and shippers) and local traffic (such as trips to schools and local shops). In addition, using the accident rates for various classes of highways extracted from the Maryland Automated Accident Reporting System (MAARS), provided by the SHA Office of Traffic and Safety, accident rates were projected for the study area road network for each of the Build Alternatives and the No-Build Alternative. The overall accident rate on the study area road network in the design year would be reduced from 1.95 accidents per million vehicle miles traveled to 1.61 accidents per million vehicle miles traveled.[429]

2. Mobility: The ICC would reduce congestion and the travel delays that accompany congestion. The ICC would reduce traffic by 10% or more on 50 miles of the existing road network, while increasing traffic on only 12 miles of the existing road network.[430] Of the 27 intersections that would operate at level-of-service (LOS) E or F in the morning peak period with the No-Build Alternate, 10 intersections would experience a substantial (i.e.,10% or more) improvement in LOS.[431] With the No-Build Alternate, a typical day during the design year 2030 would result in a total of 217 hours of signal operation at or above capacity (LOS E or F) at the 50 intersections studied.[432] With the ICC, the hours of operation at or above capacity would be reduced to 165 in the design year.[433] Applying appropriate time valuation parameters for the different user classes (by trip purpose and mode), the University of Maryland study concluded that this reduction in hours of delay would equate to $250 million per year in travel time savings in year 2030.[434]

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[429] *FEIS*, p. IV-386.

[430] *FEIS*, p. IV-362.. Most of the local roads experiencing a traffic increase are roads that would have an interchange with the ICC.

[431] *FEIS*, p. IV-370.

[432] *FEIS*, p. IV-384.

[433] *Id.*

[434] University of Maryland, *Economic Impact Study of the Intercounty Connector* (2004). *FEIS*, Tbl. VII-14, p. IV-41.

3. Reliability: The ICC study also introduced a new concept to the evaluation of project benefits; the concept of reliability. Because the ICC would utilize tolls that fluctuate during the day with the demand for the facility, it would be possible to keep the freeway functioning at free-flow conditions. This would allow users to predict with some degree of confidence what their travel time would be for a given travel distance (this form of congestion management obviously cannot overcome delays due to accidents or construction work zones). This reliability is important to an individual's ability to engage in scheduled activities at different locations for both economic and social purposes, and results in tangible economic savings. This would be an important consideration for those whose business costs increase with time (such as shippers and those making deliveries) as well as for those who would suffer a financial penalty for being late (such as people picking up their children at day-care, people late for work, people late for a flight, etc). Reliability is also an important consideration in ensuring prompt emergency vehicle response. The University of Maryland Economic Study on the ICC estimated the dollar value of this added reliability in travel time would amount to $104 million in year 2030.[435]

4. Accessibility to Jobs: Accessibility is a measure of the ability of residents to travel to desired destinations, such as work, recreation, school, shopping, and social activities. Accessibility is improved by increasing the number of destination opportunities that are available to residents within a specific, fixed travel time range. One measure of accessibility is to determine how many jobs could be reached within a 45-minute commute. This was calculated by using the 2030 modeled highway network speeds during the AM peak period to determine how many Traffic Analysis Zones could be reached within 45 minutes from zones in the ICC study area.[436] The number of jobs projected to occur in all of those zones was totaled to determine the number of jobs that can could be reached by residents of the study area within 45 minutes. Corridor 1 would provide a 27 percent increase in the average number of jobs accessible within 45 minutes compared to the No-Build Alternate (741,584 vs. 585,640).[437] Greater accessibility to jobs leads to improvements in quality of life as commuters will have more opportunity to be employed within a 45 minute commute of their home, leaving more time to spend with family and friends in after-work activities.

5. Economic Development: Because the Washington metropolitan area consistently ranks high on annual listings of the nation's most congested cities, congestion has become a deterrent to businesses relocating in the study area.[438] Therefore, a reduction in congestion can also be an economic stimulus for job creation. Changes in accessibility triggered by transportation improvements translate into business cost savings, which in turn contribute to the region's economic competitiveness. Reduced travel time to transportation hubs, such as

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[435] University of Maryland, *Economic Impact Study of the Intercounty Connector* (2004). *FEIS*, Tbl. VII-16, p VII-43.

[436] *FEIS*, p. IV-358.

[437] *FEIS*, Vol. 2, Fig. IV-9.

[438] *See* Schrank and Lomax, *The 2001, 2002, 2003, 2004, and 2005 Urban Mobility Reports*, Texas Transportation Institute.

Metro Stations, Airports, and the Port of Baltimore will help attract new firms and increase the economic activity in the region. The University of Maryland study forecast that Corridor 1 would attract 857 new businesses to Montgomery and Prince George's Counties, resulting in the creation of 14,286 new jobs.[439]

6. Inter-modal Connections: Corridor 1 would support the planned expansion of express bus service and would make the Muirkirk MARC station and the Shady Grove Metro Station accessible by a greater number of County residents. Corridor 1 also includes new park-and-ride lots at the MD 97 and MD 182 interchanges, and the proximity of the existing Briggs Chaney Road park-and-ride lot to the ICC/US 29 interchange would enhance the usage of this existing lot. Because all the lanes of the ICC are being managed, through variable toll pricing, to have free-flowing conditions during peak periods, there would be no travel time advantage afforded to buses by having buses run on a separate busway. Therefore, a separate busway was not proposed with this project. While the project does not result in large numbers of new transit users, it provides inter-modal connections and opportunities for ride-sharing, which may become more heavily utilized in the future, depending upon changes in economics, societal views, and the convenience, dependability, and comfort of transit service. Also, Maryland Department of Transportation is committing $20 million toward the study and implementation of new express bus routes within the ICC corridor, which is a commitment of the FHWA Record of Decision.[440]

7. Emergency Response Time: There are a number of hospitals in the study area, and access to three of them (Laurel Regional, Montgomery General, and Shady Grove Adventist) would be improved due to their proximity to the ICC. Many fire and rescue departments and police departments have commented in response to the DEIS that the ICC would provide an additional route for responders. This redundancy in the highway network is an important consideration for maintaining prompt emergency response when bottlenecks exist on the highway system due to accidents, rush hour, or construction work zones. System redundancy and emergency vehicle response time are two important considerations mentioned in the Metropolitan Washington Council of Governments' 11 September 2002 Regional Emergency Coordination Plan (updated 2004), which is the region's blueprint for a coordinated emergency response.[441] The ICC would provide an additional limited-access link in the metropolitan Washington area highway grid for potential evacuation or response efforts during a terrorist incident.

E. Detriments of the Preferred Alternative

Since the circulation of the FEIS, the study team continued to make further engineering refinements to Corridor 1 to lessen impacts, to balance earthwork, and to improve operations, geometrics, and safety. Further refinements will continue to be made throughout the design and construction, and the Corps intends to remain actively involved in reviewing any changes that

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[439] University of Maryland, *Economic Impact Study of the Intercounty Connector: Summary Report* (Sept. 2004). *FEIS,* Tbl. VII-11, p. VII-44.

[440] *FHWA ROD*, Attachment E, p.1, No. 6.

[441] *FEIS*, p. I-30.

affect aquatic resources. The lead agencies have tracked all changes in impacts resulting from these post-FEIS refinements. The nature of the refinements and the resulting changes in impact are discussed in the *Summary of Post-FEIS Refinements*, attached to this report (Encl #2). These changes are also reflected in the permit drawings. The changes in social and environmental impact are minor, and while this information was not known at the time the Corps concurred in Corridor 1 as the Preferred Alternative, the Corps has re-evaluated its decision and determined that the changes are not large enough to cause the Corps to alter its previous determination that Corridor 1 is the Preferred Alternative/LEDPA. These changes have been incorporated into the following table which summarizes the environmental impacts of Corridor 1.

Table IV-1 Summary of Impacts for the Preferred Alternative

Residential Displacements	51	residences
Business Displacements	10	businesses
NRE Historic Sites adversely effected	2	sites
Wetland Fill*	47.8	acres
Streams Impacted**	47,823	lin ft
Vernal Pools	6,513	sq ft
Floodplain Fill	32.95	acres
Forests Cleared	746	acres
FIDS Habitat (Direct Impact)	86.9	acres
FIDS Habitat (Indirectly Impacted)***	195.9	acres
Parklands Acquired+	88.1	acres
Additional parkland impacted by noise	176	acres
Secondary Development++	7,457	acres
Total cost (ROW and Const)	$2.15	billion

* Of the 47.8 acres of filled wetlands regulated by the Corps and MDE, 30.5 acres are low-value wetlands which have developed in abandoned sediment traps and stormwater ponds that were originally constructed for a mining operation.

** Stream impacts include temporary and permanent impacts to ephemeral, intermittent, and perennial streams regulated by Corps and MDE.

*** The calculation of indirect impacts includes interior forest that would be converted to edge. Not included in this calculation is another 21.2 acres of remnant FIDS habitat that would be isolated by the highway from the remaining interior forest and, therefore, would no longer qualify as interior forest. Most of this direct and indirect FIDS impact occurs within parks.

\+ This acreage includes 4.9 acres in Paint Branch Park that was determined to be impacted after the circulation of the FEIS.

++ This is the amount of secondary development that would be induced by Corridor 1, between years 2010 and 2030, and includes the 4945 acres of secondary development that the ELUP projected would occur with Corridor 1 in addition to the 2512 acres of secondary

development that the ELUP projected would occur under the No-Build scenario. The FEIS also contains a discussion of the cumulative development that is planned to occur between now and 2010, but such development is not induced by the ICC.

The impacts of the proposed project, and the mitigation that is proposed to offset those impacts, are discussed in detail below.

1. Social Impacts - All displacements would be accomplished in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended by Title IV of the Surface Transportation and Uniform Relocation Assistance Policies Act of 1987 and Public Law, and 49 C.F.R. Part 24 (2005). These acts require that comparable housing be found for a home owner or renter.[442] Also, Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, gender, national origin, age, or mental capacity. The 10 business displacements consist of 3 businesses that are not currently operating, a produce stand, Layhill Learning Center, a gas station, a hair salon, part of the Verizon campus, Lawn Wright Inc, and PIM Trucking. Corridor 1 would displace one community facility, the National Capital Trolley Museum, which suffered recent fire damage and which was already seeking to relocate. Corridor 1 would also be constructed adjacent to the Charles R. Drew Elementary School, and in proximity to Redland Middle School, Colonel Zadok Magruder High School, and Paint Branch High School, however, no land would be required from any of these schools, nor would circulation patterns and access be changed. The noise impact to Charles R. Drew Elementary School is eligible to be mitigated with noise walls.

The greatest community impacts would be to Cashell Estates, Winters Run, and Longmeade. The highway (Rock Creek Option C) would divide Cashell Estates, displacing a significant portion of the community, dividing the remainder of the community, and permanently changing their access patterns. The impacts to Cashell Estates were not consistent with the Master Plan for the highway, and this option was selected by FHWA in order to reduce the impact to Rock Creek Park, making this impact particularly difficult for the community to accept. This portion of the highway is eligible to be lined with noise walls on both sides of the highway, and there would be room available to plant trees between the noise walls and the remaining residences to screen the view of the wall. A new access road would be constructed to connect the homes on Overhill Road to Redland Road, changing the access to the community. Winters Run would also be divided by Corridor 1, and two homes would be displaced. The County Master Plan has long reserved a highway corridor through this community, however, the Master Plan envisioned a four-lane boulevard in this 150-foot reserved right-of-way, rather than a six-lane freeway. Proximity impacts on the Winters Run community would be reduced by depressing the highway and potentially lining the highway with noise walls on both sides of the highway, and covering 625 feet of the alignment with a landscaped deck costing $21.8 million.[443] The construction would slightly exceed the width of the highway reservation and encroach into the back yards of the

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[442] *FEIS,* p. IV-14.

[443] E-mail from Dale Topper, P.E., The Wilson T. Ballard, Co., to Paul Wettlaufer, Corps (9 June 2006).

homes along the alignment, reducing the size of their yards and, on some properties, drastically altering the appearance and utility of the yards due to construction of a concrete retaining wall/noise wall.

The minority community of Longmeade would also be divided, however, because the community was planned around the Master Plan alignment for the ICC, there would be no affect on existing transportation access patterns except for a temporary period during construction. SHA has offered to construct a pedestrian bridge connecting the two sides of the community, which is dependent upon the approval of the residents. For the most part, the highway would be depressed through the community and the noise impacts are eligible to be mitigated with noise walls and berms. However, as with the Winters Run community, the ICC would divide this community, and the community setting would be drastically altered by the construction of a major highway potentially lined with noise walls. The highway could be shielded from the Colesville minority community and the Spring Oak Estates minority neighborhood with noise walls.

A visual impact would occur with the construction of the 3-level interchange at US 29, affecting the view-shed from the minority communities of Avonshire and Tanglewood. However, as a condition of the FHWA Record of Decision, SHA will screen the interchange from the two minority communities through the incorporation of berms, vegetative screens, or a combination of the two.[444] To further reduce impacts to the Avonshire and Fairland areas, the proposed interchange at Old Columbia Pike was dropped from consideration.

As a recreational amenity, SHA committed to building a hiker-biker trail, along 7.5 miles of Corridor 1, that would be able to connect to other trails that are either existing or planned, to form a cross-county network of trails. The hiker-biker trail would cost approximately $40 million.[445] The grading limits were reduced to avoid encroachment into the East Norbeck Recreation Center.

To reduce proximity impacts, Corridor 1 would be depressed beneath all the cross roads with the exception of Shady Grove Road, US 29, and I-95, where constraints were identified that precluded depressing the ICC. Retaining walls are proposed in the following communities to minimize impacts: Forest Oak/Flounders Mill, Redland, Stonecrest and Fairland, Avonshire, and Old Gunpowder Road.[446]

2. Aesthetics - The greatest visual impact would be felt by those residents that will face a new six-lane freeway. The vast majority of the right-of-way of Corridor 1 is currently forested, and the homes that border this right-of-way currently enjoy the scenic views, wildlife, and tranquility that accompany this setting. This would be permanently lost, and replaced, at most residences, with the view of either the freeway or a concrete noise wall and some landscaping.

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[444] FHWA ROD 30 p. 28 and Attachment E, p. 4, item Number 18.

[445] SHA response to Corps Questions on the *FEIS*, (18 Jan. 06), Question 2 response.

[446] *See FEIS*, Vol. II, App. A, Plate 6, 7, 27, 28, & 36.

The tranquility and view-shed in the parks would be irreversibly altered by the presence of the highway. People frequent the parks to escape the noise, stress, and commotion that is associated with living, working, and commuting in a major metropolitan area. The construction of a highway that would be visible and audible from within the parkland and would introduce the very elements that park users are attempting to escape. The highway profile has been raised throughout the parks in an attempt to lessen the impact to the stream valley below. Bridges would be high enough, in most cases, for vegetation to become re-established beneath the bridges. Wildlife and hikers would enjoy unimpeded passage beneath the bridges. A visually-appealing arch structure will be constructed over Rock Creek Park.

3. Land Use - The proposed highway is consistent with the County Master Plan. Nevertheless, with the selection of Corridor 1, the Expert Land Use Panel projected 7457 acres of secondary development within the SCEA boundary (4954 acres more than was projected under the No-Build scenario), over-and-above that which is expected by the County Master Plan.[447] This is because the panel believed the Build Alternatives would make the area more competitive, resulting in net growth relative to the base case.[448] These impacts are discussed in greater detail in the following sections III.E.6. and III.H.6 of this Decision Document.

4. Noise Impacts - Noise impacts can be addressed by depressing the profile and by constructing noise walls or berms along every community that is projected to be impacted by noise. SHA has a $50,000 per-residence cap that they are willing to incur for noise walls.[449] However, this project resulted in the most generous provision of noise walls ever proposed by SHA. Noise walls that exceeded the $50,000 per residence threshold, but less than $100,000 per residence, were made eligible for construction by averaging the cost per residence of all noise walls over the entire project.[450] SHA, by indicating these communities are eligible to receive noise walls, is indicating a willingness to spend $20 million to mitigate noise impacts on Corridor 1.[451]

Noise walls are not proposed in park land. SHA's consultants estimate that 176 acres of parkland beyond the highway reservation will be impacted by noise (projected noise levels of 66 dBA or a 10 dBA increase over existing noise levels).[452]

5. Air Quality Impacts - There would be no violations of the one-hour or eight-

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[447] *FEIS*, p. IV-391.

[448] Memo from Sam Seskin, to Cathy Rice, SHA (24 June 2004).

[449] *FEIS*, p. IV-304.

[450] *Id.*

[451] Email from Matt Monto, Wilson T. Ballard Co., to Paul Wettlaufer, Corps (12 Jan 06).

[452] SHA, *Park Noise Impacts, Corridors 1 and 2*, Plates 3-12, 15, 17, 19, 21, 23, 25-27, 32, 48-52, 72-73, 77 and 82-83 (November 2004).

hour State and National Ambient Air Quality Standards for carbon monoxide.[453] While either ICC build alternative is predicted to generate approximately 6 - 8% of the total mobile source air toxics (i.e., benzene, formaldehyde, 1,3-butadiene, acetaldehyde, and diesel particulate matter) within the study area in 2030,[454] this contribution is not alarming when considering that each of these toxics will be reduced from current levels by 67% or more by year 2030 due to state and federal air pollution programs such as reformulated gasoline, the national low-emission vehicle program, the Tier 2 motor vehicle emissions standards and gasoline sulfur control program, and the diesel engine and on-highway diesel sulfur control programs.[455] The ICC is also part of the 2004 Constrained Long Range Plan (CLRP) and the 2005-2010 Metropolitan Transportation Improvement Program (MTIP) for the Washington Metropolitan Region. An air quality conformity analysis was conducted for all projects on the CLRP and MTIP and was found to conform to ozone standards.[456] The SHA also conducted a qualitative hotspot analysis for 2.5 micrometer and smaller particulate matter (PM 2.5), as required by EPA amendments approved March 10, 2006.[457] The qualitative analysis concluded that the ICC diesel truck volumes would be heaviest at the west and east ends of the ICC.[458] The 2010 truck volumes at these locations would be similar to the current truck volumes on the highways surrounding the existing Muirkirk air quality monitoring station, and this station shows no violations of either the annual or 24-hour standards. Also, the air quality programs mentioned above are expected to reduce PM 2.5 emissions in the Washington region by 56% by 2010.[459] Therefore, the hotspot analysis confirms FHWA's previous conformity determination regarding PM 2.5 made on 21 February 2006.[460]

6. Hazardous Materials - Hazardous material sites were identified. There are nine sites that are likely to require hazardous material remediation and four other sites with a slightly elevated risk of containing hazardous materials. These would be further investigated and cleaned up prior to constructing the ICC.

7. Historical Resource Impacts - Only two standing historic properties are adversely affected by Corridor 1, the Cashell Farm and Willow Grove. Neither is impacted by noise, but the visual impact would be mitigated by providing a vegetative screen between the

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[453] *FEIS*, p. IV-311.

[454] *FEIS*, p. IV-326.

[455] *FEIS*, p. IV-327.

[456] Letter from Gary Henderson, FHWA, and Susan Borinsky, FTA, to Phil Mendelson, National Capital Region Transportation Planning Board (14 June 2005).

[457] *See* SHA, *Project-level Conformity Determination for the Intercounty Connector Project in Maryland* (2006).

[458] SHA, *Project -level Conformity Determination for the Intercounty Connector in Maryland,* (2006) p. 9.

[459] *Id.*

[460] *Id.* at p. 5.

properties and the highway, as required by the Memorandum of Agreement between the FHWA, SHA, MdTA, and MHT signed in December 2005. SHA will also conduct an archeological survey along 34 acres of the right-of-way of Corridor 1 which were not previously surveyed, and will conduct Phase II archeological investigations to determine eligibility for the National Register of three sites: 18MO448, 18MO595, and 18MO609.

8. Impacts to the Natural Environment (Aquatic Resources, Parks, Recreation, Interior Forests, Forests, and Conservation) - The impacts to aquatic resources (wetlands, streams, and floodplains) were previously quantified. These impacts were reduced through the provision of exceptionally long and high bridges at the major stream crossings. This avoidance and minimization effort placed particular emphasis on the crossings of aquatic resources within parklands, in recognition of EPA's view that the aquatic resources inside the forested parklands along Corridor 1 are of greater value than the aquatic resources along Corridor 2 which are not protected by parklands. The decision on construction of a bridge versus a culvert at the major stream crossings was based on a wide range of factors, including cost; hydraulics; wetland and floodplain impacts; impacts on the stream morphology, stability, habitat, and species; existing and planned hiker/biker trails; parklands; wildlife corridors/greenways and wildlife passage; uncommon or important species and habitats (e.g., brown trout, comely shiner, amphibians, and spring seeps); construction-related impacts; light penetration beneath the structure; existing and proposed land use; and aesthetics. SHA has proposed a 2000-foot increase in the length of bridges through parklands as compared to the 1997 DEIS study (more than a 50% increase) at an increased cost of $60 million.[461]

The Corps recognizes that bridging does not totally eliminate impacts to the aquatic resources beneath a bridge. However, bridging will preserve the principal wetland and floodplain functions. The area beneath a bridge will still be capable of groundwater recharge and groundwater discharge. The floodplain beneath a bridge will accommodate flood storage and the settling-out of sediment as well as any nutrients bound to the sediment. Bridging will preserve wildlife corridors and recreational access. Bridging, as compared to culverts, will allow the stream bottom habitat to remain unchanged (although in some circumstances there may be a need to armor the banks of the stream). Bridging preserves the stream morphology; i.e., the stream won't undergo changes in its meander pattern, energy gradient, sediment transport, or its width and depth, as commonly occurs immediately upstream and downstream of a culvert. A bridge won't impede fish passage in the stream or destroy the benthic habitat, as occurs with a culvert. A bridge will allow nutrient reduction to continue in any wetlands that are spanned. The Corps acknowledges that the vegetative community will change beneath a bridge. If there is insufficient sunlight to support vegetation, the area beneath a bridge may be barren. The bridges on Corridor 1 within parkland have been raised to provide as much sunlight penetration as possible beneath the bridge. Even though bridging typically results in some impact to vegetation, the Corps considers bridging to be a wetland avoidance measure because, aside from a small quantity of concrete fill

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[461] *FEIS,* Vol. II App. A. (determined by comparing mapping in FEIS to mapping in the Draft Environmental Impact Analysis on the Intercounty County (1997)).

for pier footings (which has been included in the calculation of impacts), there will be no other discharge of fill in the wetlands beneath the bridge. It is the discharge of fill that the Corps regulates, not the cutting of vegetation.

There were two locations where the decision on bridge vs. culvert was the subject of much debate by the study team participants. At the crossing of a tributary to Mill Creek at Station 174, the discussions focused on the following issues: the quantity and quality of aquatic resource that would be impacted, including the resident amphibian species (wood frogs, spring peepers, and northern dusky salamander); the quantity and quality of deer habitat that would be fragmented north of the highway; the low probability of being able to preserve the spring seeps during construction; the difficulty of preserving the vegetation in the spring seeps due to inadequate sunlight beneath a bridge; and the desire to accommodate a future hiking trail beneath the highway. While the Interagency Review Team was divided on this issue and did not reach consensus, the Corps' independent review of these issues resulted in a decision to support the SHA proposal to provide two culverts, in recognition of the high costs and minimal added benefits of bridging, and the fact that the construction activities associated with building a bridge and relocating a sewer line would not have avoided the spring seep. By special condition #2 of the Corps permit, the discharge from the spring seep must be maintained beneath the highway fill. Coordination continues between SHA and M-NCPPC concerning the dimensions of a culvert that could accommodate hikers.

At Station 673, the ICC would cross a spring seep located behind the Montgomery County Maintenance Depot. The SHA determined that construction of a rock drainage blanket beneath the highway fill would enable the spring to continue to discharge to the stream. Furthermore, a bridge would not have been high enough for vegetation to grow under the bridge, causing concerns that the barren land beneath the bridge would become a source of sediment that would be transported by the spring seep to the trout stream. Also, no hiking trail is planned at this location and there is no wildlife corridor to be accommodated at this location due to the presence of the Maintenance Depot. In consideration of these facts, the Corps concurred with the recommendation of the lead agencies to build a culvert and rock drainage blanket at this location.

Culverts are being constructed at Station 152, Station 174, Station 277, and Station 312 with minimum interior dimensions of 12 feet by 12 feet in order to accommodate deer passage, as required by special condition #2 of the Corps permit. Culverts that are specially designed to accommodate small mammal passage will be constructed at Stations 114 and beneath the Shady Grove Metro Access Road, Station 301, Station 360, Station 655, and Station 978, as required by special condition #2 of the Corps permit.

In the Rock Creek watershed, avoidance and minimization of upland natural resources was accomplished with the selection of Rock Creek Option C. This alignment substantially reduced the impact to parkland and greatly minimized the fragmentation of interior forest (FIDS habitat). It also reduced impacts to the locally important and state-rare plants that were the basis for DNR designating this area as the Redland Springs Ecologically Significant Area and M-NCPPC's

designation of the same area as the Needwood North Biodiversity Area.[462] The selection of Rock Creek Option C also avoided a wildlife "hub", a designation signifying an important wildlife habitat under DNR's Green Infrastructure Program.[463] Finally, because Rock Creek Option C would cross Rock Creek at a location where steep side slopes form a narrow gorge, SHA has agreed to budget $18 million more for a more attractive, context-sensitive bridge (most likely an arch bridge) which will aesthetically enhance a future hiking trail that is proposed by M-NCPPC along the valley floor.[464]

At the crossing of the mainstem of North Branch Rock Creek, the profile was raised and the bridge lengthened in order to minimize the need for blasting on the two knolls. A small bridge is also proposed across the Brooke Manor Tributary at Station 328. The ICC would divide a 176.4-acre interior forest, leaving a 58.3-acre interior forest on the north side of the ICC and a 61.7-acre forest on the south side. [465] A population of the State-endangered trailing stitchwort would be impacted.[466]

In Northwest Branch Park, SHA has selected Northwest Branch Option A. This alignment resulted in a slight departure from the Master Plan alignment to relocate the highway out of the wetlands and floodplains on the valley floor, and place it up on the hill sides. The three proposed bridges across Northwest Branch were also raised and significantly lengthened to minimize impacts on aquatic resources, wildlife passage, and passive recreation. A soccer field will be displaced near the first crossing of Northwest Branch, and a baseball diamond that was constructed many years ago adjacent to Northwest Branch, whose utility has been limited by flooding, will be converted to a wetland. Both ball fields will be replaced at a new extension of Northwest Branch Park that will be created along the south side of Norbeck Road. The National Trolley Car Museum would be relocated. The 143.9-acre interior forest would be fragmented into a 31.9-acre interior forest on the south side of the ICC and a 31.8-acre interior forest on the east side of the ICC.[467] No State-listed threatened or endangered plants would be impacted, but four County champion trees would be lost.

In the Paint Branch watershed, bridges were raised and substantially lengthened. Previously in this Record of Decision, we discussed the unprecedented erosion and sediment control measures and stormwater management measures being employed, the prohibition on any ICC stormwater discharges into the Good Hope and Gum Springs Tributaries, and the redirection

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[462] *See FEIS*, pp. II-133, 139.

[463] *FEIS*, Vol. 2, Fig. IV-39.

[464] SHA response to Corps Questions on the *FEIS*, (18 Jan. 06), Question 1 response.

[465] *FEIS*, p. IV-260.

[466] *FEIS*, p. IV-289.

[467] *FEIS*, p. IV-260.

of the Maintenance Depot stormwater to Northwest Branch.[468] A 251.5-acre interior forest would be fragmented, leaving a 18.6-acre interior forest north of the ICC and a 127.7-acre interior forest south of the ICC.[469]

In the Little Paint Branch watershed, the bridge over the confluence of Greencastle Tributary and the Little Paint Branch mainstem was raised and substantially lengthened. No parkland is impacted at this location as the alignment stays within the highway reservation, which is not considered parkland. Two County champion trees would be lost.[470] A 40.8-acre interior forest would be divided, leaving no functioning interior forest on either side of the highway.[471]

In the Indian Creek watershed, 2000 feet of retaining wall (or other measure that will be reviewed and approved by the Corps) will be employed to reduce impacts to the stream and wetlands in Aitcheson Bog, and will be required by special condition #11 of the Corps permit. At wetland 6J (Station 978), SHA evaluated two alignment shifts to avoid impacts to the State-endangered rough-leaved aster[472] and State-threatened featherbells. The study team subsequently concurred with the selection of the southern shift because it crosses the wetland at the most narrow part and ensures that the wetland will not be cut off from its source of hydrology. SHA will permanently protect the habitat for the rare plants through a 19.9-acre restrictive covenant or conservation easement, as required by special condition #12 of the Corps permit. Approximately 2 acres of a 23.9-acre interior forest would be lost.[473]

Within parklands, stormwater management is being accomplished underground, beneath the footprint of the highway, to further minimize the amount of parkland needed for the highway and its attendant features, as required by special condition #14 of the Corps permit.

Aquatic impacts are being mitigated by a combination of stream restoration, wetland creation, fish passage projects, and water quality improvements.[474] These measures are required by special condition #40 of the Corps permit. More than 2 miles of the Northwest Branch mainstem and the Rolling Stone Tributary are to be restored. In the Paint Branch watershed, three tributaries (Left Fork, Good Hope, and Hollywood Branch) totaling 1.25 miles will be restored. Two reaches of Indian Creek will be restored to reconnect these streams to their floodplain and enhance fish habitat.

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[468] *See supra* Section III. F.

[469] *FEIS*, pp. IV-261-262.

[470] *FEIS*, p. IV-266.

[471] *FEIS*, p. IV-262.

[472] *FEIS*, p. IV-298.

[473] *FEIS*, p. IV-262.

[474] *FEIS*, pp. IV-240-242.

Wetlands are being created at seven sites to mitigate the loss of 47.8 acres of wetlands (31.67 acres palustrine emergent at a 1:1 ratio and 16.12 acres palustrine forested and palustrine scrub-shrub at a 2:1 ratio), of which 3.29 acres are not regulated by the Corps; and the conversion of 0.65 acres of forested or scrub-shrub wetlands to emergent wetlands beneath bridges.[475] The total mitigation obligation for both Corps and MDE-regulated wetlands is 64.56 acres. It is noted that more than 27 acres of the emergent wetland impact occurs in the wash pond wetlands owned by Laurel Sand and Gravel.[476] These Phragmites-dominated wetlands are considered by the Corps and MDE to have very little ecological function and value. Nevertheless, they are being mitigated by the creation of emergent and forested wetlands which will have substantially greater water quality, flood storage, and wildlife habitat value than the wash pond wetlands they are replacing. The seven wetland creation sites provide the opportunity to create 83 acres of wetlands, which is more than enough acreage to satisfy the mitigation obligation that will be specified in the Corps permit. The wetland mitigation proposal will include vernal pool creation to offset the 0.15 acres of impacted vernal pools. As required by special condition #42 of the Corps permit, the stream and wetland mitigation will be monitored for a minimum of five years, and the monitoring period will be extended beyond five years if the sites are not determined successful during the first five years of monitoring.

Obstructions to fish passage will be removed at two locations in Rock Creek near Beach Drive and at one location in Paint Branch between US 1 and the College Park Airport.[477] Stormwater management retrofits will be constructed at five locations in the Paint Branch watershed to reduce thermal impacts, reduce nutrient loads, and increase infiltration of rainfall.[478]

The impact to parklands was previously discussed in Section II. D. of this Record of Decision. Most of the land acquired from within the park boundaries is not considered by the FHWA to be a taking of parkland because it was reserved for the highway. The primary functions of the parks are wildlife habitat, stream buffers, and active and passive recreation (such as fishing, bird watching, hiking, cross country skiing, horseback riding and wildflower identification). The long bridges allow the remaining parkland to continue to provide these functions, although it is recognized that the aesthetic qualities and solitude afforded by the parks will be impaired by the presence of the highway. In Montgomery County, MNCPPC is responsible both for the development of the County parks and the planning for County highways. Consequently, most of the parkland that MNCPPC acquired over the years in Northwest Branch Park, Paint Branch Park, and Little Paint Branch Park was acquired with the knowledge that the highway, with all its

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[475] *FEIS*, pp. IV-241-242. (A conversion is considered to occur whenever there is less than 30 feet of underclearance beneath the bridge. Mitigation at a 1:1 ratio is required by MDE only, since the Corps does not regulate the cutting of wetland vegetation).

[476] SHA, *Summary of Impacts for the SHA/MdTA Locally Preferred Alternative* (23 January 2006), wetland numbers 10E and 8CA.

[477] *FEIS*, p. IV-241.

[478] *FEIS*, p. IV-242.

attendant proximity impacts, would someday be constructed immediately adjacent to the parkland. While the park owner, MNCPPC, has anticipated the construction of the highway, and has been aware that the highway would degrade the function of any parkland acquired immediately adjacent to the highway alignment, the lead agencies, nevertheless, are willing to provide enough land to compensate the park owner for both the direct impacts, as well as the indirect impacts of noise and FIDS habitat loss.

As mitigation for the 88.1 acres of displaced parkland, SHA is proposing a package amounting to776.6 acres of which 727.4 will be deeded to M-NCPPC and 49.2 to WSSC as required by the FHWA Record of Decision.[479] This includes the following replacement park parcels:[480]

> The Dungan Property North is a 44.9-acre parcel that is adjacent to the North Branch Stream Valley Park. It would provide stream valley protection and passive recreation. It contains 20 acres of forest and the opportunity to reforest an additional 24.5 acres.
>
> The Llewellyn Property is a 23.2-acre parcel that is adjacent to the Northwest Branch Park, and would have access to Norbeck Road Extended. Four baseball/softball fields and one soccer field would be constructed, along with on-site parking and restroom facilities.
>
> The Peach Orchard Allnut Property is a 118.2-acre parcel in the headwaters of the Right Fork Tributary within the Upper Paint Branch Special Protection Area. It contains 15.9 acres of wetlands, 2100 feet of stream and 28.3 acres of forest. It provides the opportunity to reforest an additional 90 acres, creates 67 acres of FIDS habitat and creates 12 acres of wetland mitigation.[481]
>
> The Southern Asian Adventist Property and the adjacent McNeill Property together provide 59.4 acres of replacement parkland in the headwaters of the Left Fork Tributary within the Upper Paint Branch Special Protection Area. These properties contain existing high quality forest and much of the Spencerville Seeps Ecologically Significant Area, an area designated by DNR that contains the State-threatened featherbells.[482]
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> The Casey Property is a 458.8-acre parcel which is outside the study area, but is in an area zoned for development near Poolesville, in Montgomery County. The property

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[479] FHWA ROD at Attachment G, p. 9.

[480] *See FEIS,* Vol 2, Fig.V-50, p. V-62 -64 and p. VII-56.

[481] *FEIS,* p. IV-241.

[482] *FEIS*, p II-134.

borders several existing parks. It contains 10.4 acres of wetlands, 9,401 linear feet of stream, 340.8 acres of forest, 214 acres of FIDS habitat, and provides the opportunity to reforest another 118 acres. Replacing the FIDS habitat that is bisected by the park crossings was considered by the environmental agencies to be an essential mitigation need. When the reforestation lands reach maturity, the total FIDS habitat on this parcel will amount to at least 332 acres. This commitment to mitigate FIDS habitat is unprecedented in Maryland.

Another 21.3-acre forested parcel that was reserved for the ICC through Northwest Branch Park, which is not considered part of the park, will be deeded to M-NCPPC[483] and 7.6 acres that was reserved in the Paint Branch Park will be deeded to M-NCPPC.[484]

In addition to the 727.4 acres being deeded to M-NCPPC, the Santini Properties in the Rocky Gorge watershed would be protected from development and deeded to WSSC. These properties comprise 49.2 acres of developable land, and would serve as a buffer to the reservoir. These sites contain 35.2 acres of forest, a portion of which is FIDS habitat that was proposed for development, and would provide opportunity to reforest an additional 14 acres.

Both M-NCPPC (the park owner) and the Department of the Interior have indicated their satisfaction with the replacement parkland. The above mitigation lands more than adequately offset not only the parkland directly displaced by the highway but also the parklands indirectly impacted either by highway noise or loss of FIDS habitat. In consideration of the total impact, including both direct and indirect impacts, the above package of 727.4 acres of replacement parkland is more than double the acreage of impacted parkland.[485] The park mitigation includes 177.6 acres in the Upper Paint Branch Special Protection Area that would buffer the headwaters of the Left and Right Forks, and 49.2 acres in the Rocky Gorge watershed (the Santini Property) that would buffer the reservoir. The preservation of these lands will provide additional protection to the two most-sensitive aquatic resources.

In addition to the 246.5 acres of potential reforestation on the above listed properties, SHA has also identified other reforestation lands that together will provide sufficient acreage to mitigate the entire 746 acres of forest loss, that are required by the FHWA Record of Decision to be mitigated at a 1:1 ratio.[486] Approximately 200 acres have been identified on WSSC property

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[483] *FEIS,* p. V-102.

[484] FHWA ROD at Attachment G, p.9.

[485] By comparison of SHA, *Park Noise Impacts, Corridors 1 and 2*, Plates 3-12, 15, 17, 19, 21, 23, 25-27, 32, 48-52, 72-73, 77 and 82-83 (November 2004) to *FEIS,* Vol. II, Fig. II-17.

[486] *FEIS*, p. IV-256.

within the Rocky Gorge watershed, adjacent to the Triadelphia Reservoir.[487] Some of these properties will connect existing forested tracts, adding to the acreage of FIDS habitat, and all will reduce the nutrients entering the reservoir. Approximately 200 acres have been identified in Seneca Creek State Park, which is owned by DNR.[488] An estimated 75 to 100 acres have been identified on existing MNCPPC-owned parklands.[489] Many of these sites are located within the 100-year floodplain, thereby enhancing habitat and water quality. From 75 to 100 acres will be reforested along the ICC right-of-way, and within uneconomic remnants, providing a visual buffer to the adjacent communities. In many cases, these lands are adjacent to existing forests. Many of the wetland mitigation sites will provide opportunities for additional acreage of reforestation.

9. State Threatened and Endangered Species - The project will minimize impacts to the state-threatened comely shiner by employing DNR's time-of-year restrictions, as mandated by the MDE Non-tidal Wetlands Permit for this project. No in-stream work may occur from 15 April through 31 July, to avoid disturbance to the spawning activities. Furthermore, the ICC will bridge the three streams where this fish has been documented, North Branch Rock Creek, Northwest Branch, and Little Paint Branch. If temporary crossings are needed for equipment access during construction, they must also be constructed using bridges that completely span the stream, in accordance with special condition #27 of the Corps permit. A population of trailing stitchwort will be impacted in North Branch Rock Creek Park.[490] A permit will not be required from DNR for a taking of this state-endangered plant.[491] The halberd-leaved greenbrier in Aitcheson Bog has been avoided through the use of a retaining wall. The halberd-leaved greenbrier and the rough-leaved aster in wetland 6J have been avoided through an alignment shift. A permanent conservation easement will be enacted by SHA to protect these populations, as required by special condition #12 of the Corps permit. No federally-listed threatened or endangered species are affected.

10. Flood Hazards and Floodplain Values - With Corridor 1, 32.95 acres of floodplain would be affected by either clearing or filling,[492] Where floodplain is being filled, state law requires SHA to complete a hydrologic and hydraulic (H&H) analysis to ensure that any resulting changes in flooding and stream velocity are minimal.[493] The Corps does not regulate the discharges of fill in floodplains except where the floodplain is also a wetland. (There are 4.3 acres of wetlands that are being filled within the floodplain). Consequently, the analysis of floodplain impacts generally is limited to MDE's H&H analysis, which addresses flooding impacts. The

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[487] *Id.*

[488] *Id.*

[489] *Id.*

[490] *FEIS,* p. IV-289.

[491] *See* Memo from Mike Slattery, DNR,, to Paul Wettlaufer, Corps (11 May 2006).

[492] *FEIS*, Tbl. IV-51, p. IV-145 (revised post *FEIS* refinements, Encl. 2).

[493] MD. CODE REGS. 26.17.04.03(C) (2006).

Corps acknowledges that there will also be a loss of beneficial natural functions, such as nutrient assimilation, sediment removal, nutrient export, groundwater recharge, and dissipation of erosive energy. However, the replacement of the lost floodplain acreage and lost floodplain functions will be accomplished in two different ways with the proposed stream and wetland mitigation. It is a goal of the stream restoration/mitigation program that, in those stream reaches where the streams are so deeply incised that the water no longer comes out-of-bank during storm events, the restoration will include measures to restore out-of-bank flows, thereby re-connecting the streams to their floodplain and re-establishing the lost floodplain functions. Second, a portion of the 64.56 acres of wetland creation will be in close proximity to an existing stream, such that the created wetland also results in the formation of new floodplain that will replace the lost natural functions of a floodplain.

Most of the new bridges are longer than is needed to satisfy MDE regulations pertaining to increases in flood elevation and velocity,[494] but in no case will they be less than the hydraulic opening needed to satisfy MDE regulations.[495] All major culverts will also be required to satisfy the same requirements, which will be mandated by the MDE Waterway Construction Permit. The ballfield adjacent to Northwest Branch, just north of Bonifant Road, which frequently floods, will be converted to a wetland, and the field replaced at the Llewellyn Property.

11. Water Supply - With the selection of Corridor 1, no impact is expected on water supply because Corridor 1 does not encroach into the watershed of the Rocky Gorge Reservoir.

12. Water Quality - In consideration of the extraordinary measures being employed to treat stormwater and to control erosion and sediment, the prohibition of any runoff being discharged to the Good Hope and Gum Springs trout nursery, and the rerouting of the Maintenance Depot runoff to a proposed stormwater pond in the Northwest Branch watershed, water quality is not expected to be substantially impaired. MDE has issued a Water Quality Certificate for the project.

13. Food and Fiber Production - The proposed highway would impact 11 individual farms. At four of the farms, the impact would render the entire property non-farmable, while at the remaining farms only the perimeter of the farm is impacted. All of the impacted farms are located outside the County's Agricultural Wedge and most are zoned or proposed for development.[496]

14. Mineral Needs - Sand and gravel extraction is no longer occurring at the Laurel Sand and Gravel property. The construction of the road will require sand, gravel and other

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[494] *FEIS*, p. IV-3.

[495] MD. CODE REGS. 26.17.04.16(B)(4) (2006).

[496] *FEIS*, p. IV-148.

aggregates. It is anticipated that there will be an increased demand in the immediate area for these resources due to the construction of the road and subsequent development. There is, however, adequate supply of these resources to meet this increased demand.

15. Energy Needs - Energy would be consumed both to construct the highway, and to power the vehicles that would use the highway. The FEIS did not quantify the amount of energy that would be consumed, but concluded there would be no notable difference in energy usage requirements between the two build alternatives.

A report titled "*Peaking of World Oil Production: Impacts, Mitigation, and Risk Management*" by Hirsch, Bezdek, and Wendling, February 2005, was submitted with the public comments received on the FEIS. The report indicates that even the most optimistic forecasts suggest that worldwide oil demand will surpass worldwide oil production in less than 25 years. This will trigger shortages that could have substantial economic repercussions and result in declining living standards unless alternative fuels are developed, or technology is developed to consume oil more efficiently, or conservation measures are imposed. In 2003, the transportation sector accounted for two-thirds of the oil consumed in this country. Given the time that it takes to replace the fleet, the conversion to ethanol-based fuels, hydrogen-powered cars, or hybrids would not result in substantial fuel savings for many years, according to the report. As the cost of conventional oil production continues to increase, alternative energy production techniques that are currently too expensive will become more competitively priced. These include enhanced oil recovery technologies, tar sands, liquefied natural gas, coal liquefaction, oil shales, and bio-fuels. Some of these strategies will require substantial improvements in technology in order to become competitive. The report concludes that the U.S. could emerge as the world's largest producer of substitute liquid fuels, due to having the world's largest coal reserves. However, unless the permitting and construction of new production facilities is streamlined and expedited, developing countries such as India, China, and Korea could out-compete this country for that market.

It typically takes a sharp increase in energy prices for people to change their energy consumption. As prices continue to rise, more people will convert to fuel-efficient automobiles, adjust their driving patterns to conserve energy, and perhaps even use transit. While Americans may reduce their energy consumption, it is expected that emerging technologies will be implemented that will sustain the American appetite for automobile travel for the foreseeable future.

16. Navigation - Not Applicable.

17. Bank Erosion and Accretion - By special condition of the Corps permit, culverts will be designed to address the specific geomorphic characteristics of the stream, so as to avoid downstream scour and channel degradation. The proposed bridges are longer and higher than is needed to satisfy MDE restrictions on velocity increases. Therefore, the ICC is not expected to result in bank erosion. In fact, many miles of impaired streams will be stabilized as part of the mitigation package for aquatic resources.

18. Wild and Scenic Rivers - There are no federally designated Wild and Scenic Rivers in the study area. The Anacostia, Patuxent, and the Montgomery County portion of the Potomac River, and their tributaries, are considered scenic under the Maryland Scenic and Wild Rivers Program. In a 23 May 2006 memorandum from John F. Wilson, DNR, to Greg Golden, DNR, the Maryland Department of Natural Resources concluded that the Scenic and Wild Rivers Program is satisfied that the level of information provided in the [FEIS] document sufficiently addresses potential impacts to the designated "Scenic Rivers." DNR specifically noted the efforts to avoid and minimize potential impacts through bridging, the use of an Environmental Manager during construction, reductions in the project footprint, and utilization of sensitive design measures. DNR asked for continued coordination, and advised that no permit is required by the Scenic and Wild Rivers Act.

F. Balancing of Benefits and Detriments

While the resources that lie in the path of the Selected Alternative are valuable, SHA has committed to building the highway in an environmentally responsible manner. SHA has responded to every identified impact with extraordinary measures to minimize the harm. The following summarizes these measures, many of which are unprecedented in Maryland:

- Exceptionally long, high bridges will be constructed within parkland in recognition of the high quality natural resources in the parks.
- Underground detention of stormwater will be employed to minimize the need for further park acquisition.
- Linear stormwater management (i.e., filtration) will be employed to improve the water quality of runoff in the two Use III watersheds that are traversed by the project.
- The first 1.5 inches of rainfall will be managed for water quality throughout the project (state standards require management of only the first inch of rainfall).
- The project will include construction of 7.5 miles of hiker-biker trail parallel to the highway.
- The project incorporates selection of an alignment option, Rock Creek C, that greatly reduces impacts to Rock Creek Park.
- The incorporated Rock Creek Option C includes a 625-foot long cut-and-cover section to minimize community impact.
- The incorporated Rock Creek Option C includes a context-sensitive bridge over Rock Creek.
- The project incorporates an alignment shift (Northwest Branch Option A) that reduces wetland/floodplain clearing in Northwest Branch Park.
- Stormwater is being rerouted to avoid discharges into the Good Hope Tributary and Gum Springs Tributary trout nursery.

- Existing stormwater discharges from the MCDPWT Maintenance Depot will be rerouted from the Good Hope Tributary to the Northwest Branch to reduce metals contamination in the trout nursery.
- Construction measures will be employed to maintain spring seepage at Station 174 and Station 673.
- Long retaining walls/wingwalls are being utilized to further reduce wetland impacts at the bridge over the tributary to North Branch Rock Creek (Station 328).
- A 700-foot alignment shift has been incorporated to avoid the state-listed rough-leaved aster in wetland 6J.
- A 2000-foot retaining wall has been added along I-95 to minimize impacts to Aitcheson Bog.
- The project employs generous allowances in the application of the maximum cost threshold for noise barriers.
- The mitigation package for parkland includes more than 2:1 replacement of both direct and indirect impacts to M-NCPPC-owned parklands, including mitigation for FIDS habitat.
- The mitigation package includes the transfer of an SHA-owned 49.2-acre property (Santini Property) in the Rocky Gorge watershed to WSSC to enhance the long-term protection of the reservoir.
- The project employs retaining walls adjacent to several communities in order to reduce the limit of disturbance in residential areas.
- The project includes a comprehensive compensatory mitigation proposal to offset the aquatic impacts.
- The project includes a package of mitigation for forest loss.

The benefits of the highway are documented above. The citizens living in the study area currently must endure long delays at many of the intersections in the study area. Their quality of life is adversely affected by the amount of time spent in rush hour traffic, and the congestion encountered when making trips to schools, shopping, and recreation activities. Safety on the local road network is compromised by the mixing of local and through-traffic and the inadequate capacity of many of the local roadways which were not designed to accommodate the high volumes they currently carry. Construction of the ICC would enable the longer-distance, through traffic to divert to the freeway, and allow the arterial roads to serve their intended purpose of accommodating local trips. Commerce is challenged by the inadequate capacity and long delays on the major highways in the Washington metropolitan area, and recruitment of new businesses has been hampered by the area's reputation for gridlock. A high-speed east-west connection linking the I-270 Technology Corridor to the I-95/Washington - New York Corridor would be a major improvement over the intolerable congestion on I-495. The majority of people living in the study area want additional transportation capacity. While those living in proximity to the ICC would be negatively affected, the benefits of the highway would be enjoyed by more than 300,000 motorists per day in the design year.[497]

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[497] *FEIS*, p. IV-351.

In consideration of the benefits of the project and the extensive minimization and mitigation of its adverse impacts, the Corps finds the project not contrary to the public interest.

The above decision to authorize Corridor 1 was based on the impacts of the entire project, including the impacts associated with the MD 182 interchange, the extension of the ICC to US Route 1, and the hiker-biker trail. However, the Corps' decision whether to authorize an interchange at MD 182, whether to authorize the extension of the ICC to US 1 rather than terminate it at I-95, and whether to authorize the hiker-biker trail are evaluated independently below, because the ICC could potentially function without each of these components. The following analysis considers the benefits and detriments of each of these components, to ensure that these components will not be authorized by the Corps unless they have been determined not contrary to the public interest.

G. Public Interest Finding for the MD 182 (Layhill Road) Interchange

An interchange at MD 182 (Layhill Road) was evaluated as an option of both Corridors 1 and 2. By eliminating the interchange at Layhill Road from the project, the costs and impacts of Corridor 1, could be reduced by the following amounts:[498]

0.01 acres of wetlands
1.2 acres of forest
$9 million

Without the interchange, motorists on Layhill Road would have to detour about 3 miles to access the ICC at MD 97 or 3.5 miles to access the ICC at MD 650. This additional travel on the local road network would add considerable traffic to some of the east-west roads (such as Bel Pre Road, Bonifant Road, and MD 28) that would otherwise experience the greatest reduction in traffic.[499] Some of the intersections along these detour routes would also experience additional delay. Furthermore, a Layhill Road interchange is consistent with the Montgomery County Master Plan.

In consideration of the minor additional impacts compared to the considerable transportation benefits of building this interchange, the Corps finds the Layhill Road interchange not contrary to the public interest.

H. Public Interest Finding for the Extension of Corridor 1 to US Route 1

With both Corridor 1 and Corridor 2, options were evaluated to terminate the project at US 1 and to terminate the highway at I-95. If the ICC were terminated at I-95, the following costs and impacts associated with approximately two miles of Corridor 1 could be eliminated:[500]

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[498] *FEIS*, Tbl. VII-2, p VII-9.

[499] *FEIS*, p. VII-8.

[500] *FEIS*, Tbl. VII-9, Page VII-24.

2	residential displacements
3	business displacements
2.33	acres of wetlands
4678	linear feet of streams
3.0	acres of floodplain
62.7	acres of forest
2.4	acres of FIDS habitat
$145	million

With the truncated alternative, total traffic volume on the east-west local roads, east of I-95, would increase by 8%.[501] Nevertheless, more miles of roadway would experience a significant decrease in traffic than would experience a significant increase in traffic. Figure IV-11 of the FEIS shows that truncating at I-95 would result in approximately 5500 linear feet of local roads experiencing a significant reduction in traffic while only 1700 linear feet of local roads would experience a significant increase in traffic. Also, Table IV-110 of the FEIS shows that the truncated alternative would result in two fewer intersections at or above capacity in both the AM and PM peak periods. Consequently, traffic operations on the local road network between I-95 and US 1 are slightly improved with the truncated alternative.

However, of greater importance would be the effect of the truncation on commerce. The portion of Prince George's County between I-95 and US 1 is zoned for construction of business parks. If the ICC were extended to US 1, this area would be a more appealing location for a new, or relocating, business due to the provision of direct access to the ICC at the Virginia Manor Road interchange.[502] In addition, there are many existing commercial and retail centers along US 1, as well as a major employment center, the Beltsville Agricultural Research Center, which would benefit by the nearby ICC access. Without the extension of the ICC to US 1, commercial traffic desiring to travel west on the ICC would have to access the ICC by traveling on Virginia Manor Road to the I-95/MD 212 interchange, or Contee Road to the proposed I-95/Contee Road interchange, and then travel on the I-95 collector road for about one mile to the ICC interchange. While this additional traffic would not overload the I-95 collector road in the design year,[503] access to the ICC would be more circuitous, time-consuming, and on roads that have higher accident rates. The extension to US 1 also provides an important multi-modal linkage to the Muirkirk MARC station, facilitating express bus service and automobile connections to the MARC station.

In consideration of the advantages to the area's developing commerce and the access to transit, the Corps finds the additional impacts associated with the two-mile extension to US 1 to be outweighed by its advantages. Therefore, the extension to US 1 is considered not contrary to the public interest.

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[501] *FEIS*, Tbl. IV-103, p. IV-352.

[502] It should be noted that, from a natural resource perspective, this is a good location to encourage development, as most of the terrain consists of reclaimed mine land.

[503] *See FEIS*, Tbl. IV-115, p. IV-382

I. Public Interest Finding for the Hiker-Biker Trail

With both Corridor 1 and Corridor 2, a hiker-biker trail was proposed along portions of the corridor, parallel to the ICC. Where the trail coincides with areas that are proposed for noise walls, the trail would be constructed on the community side of the noise wall, rather than on the highway side. If the 7.5 miles of hiker-biker trail were not constructed, the following costs and impacts associated with the construction of the trail could be eliminated from the impact totals for Corridor 1:[504]

0.33	acres of wetlands
390	linear feet of stream
0.55	acres of floodplain
8.6	acres of forest
2.4	acres of FIDS habitat
$40	million

The hiker-biker path would connect to existing and planned trails on the local road network. The 7.5 miles of trail being constructed parallel to Corridor 1 would be part of a continuous 20+ mile cross-county trail when the remaining links are constructed. All of the proposed trail segments that are proposed as part of the ICC project would be usable even if the planned County bike network were not completed. The trail would provide an optional mode of transportation to shopping and employment, as well as a recreational amenity. In consideration of the recreational benefits alone, the benefits are considered to exceed the environmental detriments. Therefore, the hiker-biker trail is considered not contrary to the public interest.

J. Monitoring and Enforcement Programs

As required by special conditions of the Corps' Section 404 permit, SHA will be responsible to implement the following monitoring plans and programs.

SHA will implement an Environmental Management Plan for the duration of design, construction, and post-construction monitoring of the highway and the compensatory mitigation. As part of that Plan, SHA will establish an Environmental Management Team (EMT) whose responsibility is to oversee and track the implementation of all commitments in the FHWA Record of Decision and environmental permits, to ensure that the design/build contractor does not violate any permit conditions, to conduct Quality Assurance ratings of the contractor's erosion and sediment controls, to ensure the work progresses with a sensitivity to the environment, and to track the additional impacts and required mitigation in any approved permit modifications. The EMT will coordinate with the Interagency Working Group throughout design and construction, reporting on the following: status of the construction of the highway and compensatory mitigation, permit compliance issues, any proposed permit modifications, and the resource impacts and

[504] Approximations scaled from *FEIS,* Vol. 2, App. A.

mitigation resulting from any approved modifications. SHA will also hire an Independent Environmental Monitor who will have no affiliation with the design, construction, or construction supervision, and will be stationed at the project site and able to report any permit violations to the Corps and MDE.

The new SHA Erosion and Sediment Control Program was previously mentioned. SHA's Quality Assurance inspectors will rate the contractor's erosion and sediment controls on a weekly basis. Incentives or penalties will be assessed based on the outcome of the ratings.

Accompanied by the Corps, SHA will conduct an inspection at the conclusion of each construction contract (as required by special condition #46 of the Corps permit) to assess the condition of the remaining portion of those wetlands which were only partially impacted, to determine whether they continue to function as wetlands. The inspection will also document the success of the restoration efforts of any temporary wetland and stream impacts. Remediation efforts will be undertaken where necessary, and should such efforts subsequently fail, additional mitigation will be required at the approved ratios specified in the Corps permit.

Completed wetland and stream mitigation sites will be monitored for a minimum of five years, beginning with the first growing season following construction of the mitigation site (as required by special condition #42 of the Corps permit). Annual reports shall be submitted to the permit agencies discussing what was constructed, whether the sites are successful, and, if not successful, the recommended remediation measures.

V. Positions of Support or Opposition by Government Agencies, Commissions, and Elected Officials

A. The following positions were expressed by the federal, state, and local government agencies and commissions.

1. U.S. Environmental Protection Agency (EPA)

By letter dated 27 April 2006, from Donald Welsh, Regional Administrator, EPA summarized their current position by saying that "both build alternatives have significant environmental impacts.... The resources that will be disturbed by construction and operation of a highway have been considered by EPA as irreplaceable." The EPA also concluded that "resources along the alignment will still be degraded and fragmented, but it is expected that minimization, mitigation, enhancement, and preservation efforts will help to sustain environmental conditions for the regional area." EPA also acknowledged that Corridor 1 reduces the risk to the reservoir from hazardous spills.

2. U.S. Department of the Interior (DOI)

The letter from DOI includes the views of the NPS and the FWS.[505] By letter dated 24 February 2006, from Willie Taylor, Director, Office of Environmental Policy and Compliance, DOI concluded that with the various measures and mitigation proposed, Corridor 1 with Rock Creek Option C and Northwest Branch Option A are "environmentally acceptable." DOI also concluded that "the mitigation package provides replacement parkland that closely replicates the parkland that will be impacted in terms of providing FIDS habitat, mature forest adjacent to stream valleys and contiguous to public parklands, wetlands, floodplains, and plant and wildlife habitat." DOI stated that the wetland mitigation package is acceptable, that every possible measure will be initiated to preserve the trout stream, and that long bridges in the parks preserve most of the functions of the highest value wetlands, streams, and floodplains that will be impacted by Corridor 1.

3. Advisory Council on Historic Preservation (ACHP)

By letter dated 15 July 2005, from Raymond Wallace, Office of Federal Agency Programs, the ACHP indicated that they do not believe their participation in consultation to resolve adverse effects is needed on this project.

4. Maryland Historical Trust (MHT)

By letter dated 16 February 2005, from J. Rodney Little, State Historic Preservation Officer, MHT indicated that, of the two alternatives, Corridor 2 has "considerably greater impacts to cultural resources." They also indicated that the severe impacts caused by the Corridor 2 options (Spencerville C, Burtonsville A, and Norbeck B) "pose mitigation challenges for Edgewood II, the Free Methodist Church Camp Meeting Ground, Drayton, and Willow Grove historic sites."

5. Maryland Department of Planning (MDP)

MDP issued a White Paper on 8 July 2005 summarizing that agency's position on the ICC from the perspective of the Economic Growth, Resource Protection, and Planning Act of 1992 and the Smart Growth and Neighborhood Conservation Act of 1997. MDP urged that preference be given to Corridor 1 for the following reasons:

(a) Corridor 2 will induce more low-density development in northern Montgomery County and the Patuxent River watershed than will Corridor 1.

(b) Because the three interchanges along Corridor 2, east of MD 97, are not shown in the County's Master Plan, are outside of the Priority Funding Area, and are outside planned growth areas, the situation is conducive to large scale, unplanned, land use changes. The "Change or Mistake" rule will result in significantly increased demand for zoning changes at the

[505] Throughout the study process the Corps engaged in consultation with FWS as required by the *Fish and Wildlife Coordination Act*, 16 U.S.C. § 661 (2005).

interchanges. There is substantial acreage available at these three interchange locations to accommodate this unplanned growth.

(c) According to an analysis performed independently by MDP, the Transportation Analysis Zones (TAZ's) east of MD 97 that are affected by Corridor 1 have 2,696 units of additional housing capacity within the Priority Funding Area (PFA). The TAZ's east of MD 97 that are affected by Corridor 2 have 629 units of additional housing capacity within the PFA and 747 units of additional housing capacity outside the PFA. This indicates that Corridor 1 will have substantially more household holding capacity in PFA's than will Corridor 2, and MDP finds that Corridor 1 will more fully comply with State planning and growth policies.

(d) Corridor 2 will more directly impact the rural road network in Upper Montgomery County. Large infrastructure expenditures would be needed to upgrade the rural local roads. Corridor 1 would not necessitate major capacity increases or geometric improvements to the existing road network.

(e) If Corridor 2 were selected, Montgomery County would need to begin the long, contentious process to revise the master plans along both corridors. This public process would open the door to major re-zoning efforts

6. Maryland Department of Natural Resources (DNR)

By letter dated 23 March 2006, from Ray Dintaman, Director, Environmental Review Unit, DNR indicated their satisfaction with the consideration given to natural resource protection throughout the study process.

7. Maryland Department of the Environment (MDE)

By letter dated 11 April 2006 from Elder Ghigiarelli, Jr., Deputy Administrator of the Wetlands and Waterways Program, MDE commended SHA for their extraordinary efforts in preparing a comprehensive analysis of the alternatives evaluated in the EIS. MDE reiterated their concurrence with Corridor 1 as the Preferred Alternate, and indicated that their previous comments on the Draft EIS and preliminary FEIS have been satisfactorily addressed in the FEIS.

8. Montgomery County Department of Public Works and Transportation (MCDPWT)

By letter dated 24 February 2005, from Director Arthur Holmes, Jr, MCDPWT reiterated County Executive Douglas Duncan's preference for Corridor 1, "because it best implements the County's long-standing and highly participatory master planning process, careful land use regulatory efforts, and balanced approach to community building and care for the environment, thereby keeping faith with the people of Montgomery County. Corridor 1 is the alternative that most completely balances all of the factors impinging on this decision." The MCDPWT indicated it is less in favor of Corridor 2 because of "its impact on community and historic resources, it would undo years of careful master planning, would subject the County's land use planning and

zoning regulation to the 'change/mistake' process, is an inferior transportation solution compared to Corridor 1, and lacks the same degree of public support as Corridor 1." They also supported Rock Creek Option A over Rock Creek Option C, construction of an interchange at Layhill Road (MD 182), construction of a partial interchange at Briggs Chaney Road, and they opposed construction of a partial interchange at Old Columbia Pike.

9. Prince George's County Department of Public Works and Transportation (PGDPWT)

By letter dated 7 Febrary 2005, from Acting Director Haitham Hijazi, PGDPWT stated a preference for Corridor 1 because it "has the greatest consistency with the Laurel, Beltsville, and Vicinity Master Plan and provides the greatest benefits to Prince George's County." They also supported terminating the ICC at US Route 1 to serve existing and future economic development centers in Prince George's County. PGDPWT noted that the ICC would "greatly improve the quality of life for our citizens" due to fewer hours of congestion, faster travel times, better reliability, and generally improved intersection levels of service, and would support the creation of 6000 new jobs in Prince George's County. They acknowledged that Corridor 1 environmental impacts have been minimized with longer bridges, narrow roadway footprint, noise walls, and mitigation. They noted that Corridor 2 would adversely affect the proposed Konterra project and the Rocky Gorge Reservoir in the event of a trucking accident/spill.

10. Maryland-National Capital Park and Planning Commission (MNCPPC)

By letter dated 25 October 2004, from Derick Berlage, Chairman, Montgomery County Planning Board, the MNCPPC indicated its preference for Corridor 1 and explained that allowing a highway to be constructed through its parkland should not be construed as inconsistent with its stewardship mission. "The conversion of particular parkland to a transportation use, when called for in approved master plans and when accompanied by the receipt of suitable replacement parkland, is entirely consistent with this agency's stewardship mission....The use of parkland and land adjacent to parkland to construct a master-planned roadway is consistent with the County's overall land use and transportation vision. The master planned right-of-way reflects a longstanding balance between the need for a roadway and other environmental preservation efforts....I cannot emphasize strongly enough our commitment to seeing the ICC adhere substantially to the master plan alignment. Any alternative alignment would contravene this agency's 40-year old General Plan,...and violate Montgomery County's most fundamental planning principles." By letter dated 21 September 2005, Mr. Berlage commented on the package of park mitigation stating that the "698 acres of the Casey, Llewellyn, Dungan, McNeill, Southeast Asia, and Peach Orchard/Alnutt properties meets and in many aspects exceeds the land compensation necessary....The Casey Property at Hoyles Mill is the single best natural resource addition that can be made to the park system. It is a highly valued replacement for interior forest."

11. Montgomery County Council

By letter dated 1 March 2005, the Montgomery County Council reiterated its support for Corridor 1, Rock Creek Option A, the MD 182 interchange, Northwest Branch Option A,

construction of a partial interchange at Briggs Chaney Road, construction of a 10-foot wide bike trail along the ICC, and dredging of Lake Needwood as an environmental stewardship project. By letter dated 1 March 2006 from Council President George L. Leventhal, the County Council expressed its disappointment that the hiker/biker trail will not be constructed along the entire length of the ICC, and offered some recommendations for preserving the ability to construct the missing segments in the future.

12. Prince George's County Council

The Council passed resolution CR-32-2003 in 2003 opposing the construction of the full ICC, but supported an east-west link between US 29 and US 1. The County Council has not modified that position.

13. Prince George's County Government, Office of the County Executive

By letter dated 9 February 2005, County Executive Jack Johnson stated "I do not believe the proposition that an Intercounty Connector only supports Montgomery County at the expense of Prince George's County. It will enhance and support the County's planned employment and housing growth in the northern tier, and will be a spur for additional and appropriate planned growth... Anticipated growth of the hi-tech community in the I-95 corridor and a new town center in our northern tier will benefit, not suffer, from enhanced travel opportunities and connections to counterparts at the other end of the connector. In fact, the economic impact analysis conducted by the University of Maryland found that 40% of the job growth resulting from construction of the Intercounty Connector would occur in Prince George's County, despite the fact that just 20% of the road is located here."

By letter dated 14 February 2006, County Executive Jack Johnson stated his support for designating the portion of the Intercounty Connector between I-370 and I-95 as part of the National Highway System. He indicated that this highway would provide a freeway corridor to support federal facilities and regional growth centers associated with the nation's capital, and would provide a link that relieves three severely overburdened sections of the Interstate System.

14. City of Greenbelt

By letter dated 3 January 2005, Mayor Judith Davis, on behalf of the City Council, reiterated the City's long-standing opposition to the ICC in general, and its opposition to extending the ICC east of I-95. Reasons cited for this opposition were the environmental impacts, the growth of sprawl, the enormous price tag, the minimal impact on reducing interstate traffic, and the added congestion on US Route 1. By letter dated 10 March 2006, the Mayor reiterated the City's opposition to the ICC.

15. City of Bowie

By letter dated 9 February 2005, David Deutsch, the City Manager of Bowie, on behalf of the City Council, stated its opposition to extending the ICC east of I-95, due to environmental impacts, impacts on the quality of life for residents along the alignment, and additional impacts to US 1 in the Laurel area.

16. City of Rockville

By letter dated 3 January 2005, the Mayor of Rockville, on behalf of the City Council, conveyed their support for the ICC (without expressing a corridor preference) with the condition that significant new growth not be allowed and that the ICC not increase congestion at the I-270 / I-495 interchange.

17. City of Laurel

In commenting on the DEIS, the City expressed a preference for extending the ICC to US 1 to provide a multi-modal connection to the MARC Station. The City opposes Corridor 2.

18. Gaithersburg City Council

In a letter commenting on the DEIS, the Council indicated the ICC is urgently needed, and should be built in an environmentally sensitive manner.

19. Town of Washington Grove

In a letter dated 21 March 2006, Mr. Robert Booher, Chair of the Town's Historic Preservation Commission, challenges the SHA findings that the ICC would not be visible from the Town, and states that the FHWA Noise Abatement Criteria, Land Use Category A would be more appropriate for the Town than Land Use Category B. Mr. Booher concludes that the ICC, particularly the new interchange with I-370, would result in an adverse effect on the historic town, which is listed as a historic district on the National Register of Historic Places. (It is noted that the FHWA noise abatement criterion for Land Use Category A is 67 dBA, which will not be exceeded in the historic district. The Maryland Historical Trust concurred that the ICC would have "no impact" on the Washington Grove Historic District)

20. City of College Park

By letter dated 14 March 2006, Mayor Stephen Brayman expressed concern for the secondary impacts to Paint Branch and Indian Creek that will result from the economic development of Konterra that will be spurred by the ICC. He also expressed concern that the ICC would take highway construction dollars away from other needed projects, and would foster sprawl development.

21. Washington Suburban Sanitary Commission (WSSC)

By letters dated 5 January 2005 and 2 February 2005, the Interim General Manager, Carla Reid Joyner, expressed a number of concerns regarding the impact of Corridor 2 on the Rocky Gorge Reservoir. These focused on the non-renewable nature of the reservoir resource, increased nutrient loading from ICC runoff, the threat to the security of the region posed by a hazardous spill, and a shift in management philosophy over the past decade from managing for treatment to managing for protection of source waters.

B. Positions of Elected Officials

Most of the letters received from elected officials were for the purpose of forwarding requests from their constituents related to the need for more information or extensions of time. Only the following letters from elected officials expressed a personal position regarding the ICC:

1. Hon. John A. Giannetti, Jr., Maryland State Senator, District 21, Prince George'sand Anne Arundel Counties

By letter dated 11 February 2005, the Senator expressed support for ICC Corridor 1, with a terminus at US Route 1, citing the benefits of terminating near the MARC train station, the connection of the I-270 high-tech corridor with the northern Prince George's County high-tech business concentration, the easy access for Prince George's County residents to the I-270 employment corridor, and a reliable transportation route from Montgomery County to the I-95 corridor, the City of Baltimore, the Port of Baltimore, and BWI Airport.

2. Hon. Rob Garagiola, Maryland State Senator, District 15, Montgomery County

By letter dated 19 January 2005, the Senator expressed his support for the ICC, and his disappointment that the ICC no longer includes the original plan for the bikeway.

3. Hon. Joan Stern, Maryland Delegate and Deputy Majority Whip, District 39, Montgomery County

By letter received 24 February 2005 requesting an extension of the comment period for the DEIS, the Delegate expressed support for an east-west corridor.

VI. Response to Comments

As the lead federal agency for compliance with NEPA, the FHWA is responsible for providing a response to the comments received on the FEIS and the Corps adopts those responses provided by the lead agency. However, the Corps has carefully reviewed all comments pertaining to aquatic resources, and the Corps further responds to comments as follows. The Corps has attempted to consider all the substantive issues that have been identified during the study process. The Corps has benefitted from the input of hundreds of citizens over the course of four public hearings, and from the perspectives of numerous local, state, and federal agencies that participated in the Interagency Working Group. It is noted that of all the citizens testifying at the public

hearings, only a handful supported construction of Corridor 2. Most testified in opposition to an ICC. Many qualified their opposition by stating that if it has to be constructed, it should be constructed along Corridor 1. In addition, while the Department of Interior and EPA commented at the DEIS phase that they prefer the selection of Corridor 2, neither of these agencies continues to have an objection to the selection of Corridor 1 with Rock Creek Option C. Furthermore, after careful consideration of all the competing interests, the remaining state, federal, and county agencies participating on the study team have come to the conclusion that Corridor 1 with Rock Creek Option C is the preferred choice.[506]

A. The ICC would alter drainage patterns, threaten the hydrology to adjacent wetlands, and possibly eliminate distinct compositions of species. (David Nunez)

The ICC would sever a number of large wetland systems. Drainage structures will ensure a hydrologic connection between the wetlands on either side of the highway. There are also several wetland systems that fall partially within the limit of disturbance and partially outside the limit of disturbance. The study team evaluated whether the remaining portion of these wetland systems would continue to receive adequate hydrology. Where a determination was made that the remnant wetland would cease to have sufficient hydrology, the remnant wetland was considered to be impacted, and its acreage included in the quantification of impacts. Also, by special condition of the Corps permit, all severed wetland systems are to be evaluated at the end of construction to ensure that the remnant is either functioning or, if not functioning, was included in the final tally of impact acreage.

B. What is the effect of deicing salt on local trout streams, and on spotted trout in particular? (Roy Peck)

There are no spotted trout in the study area. The Paint Branch supports a self-sustaining population of brown trout. By special condition of the Corps permit, no stormwater discharges will be directed to the Good Hope or Gum Springs Tributaries. Although runoff will be discharged to the Paint Branch mainstem, the volume of flow in the mainstem is much greater than in the tributaries, allowing for greater dilution. Runoff from the Maintenance Depot on Cape May Road is currently a source of heavy metals and salt in the Good Hope Tributary. By special condition of the Corps permit, the first 1-inch of rainfall from this facility will be redirected to the Northwest Branch watershed, which contains less-sensitive species of fish.

C. Rock Creek Option C is not better than Rock Creek Option A in terms of impacts to the aquatic environment, and the social impacts of Rock Creek Option C do not justify the small aquatic impact reduction afforded by Rock Creek C. (Residents of Cashell Estates, Intercounty Connector Master Plan Advocates)

Aquatic impacts were not a factor in the decision by the lead agencies to select Rock Creek

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[506] For a summary of the final positions of the agencies that participated on the study team, *see* Section V of this document.

Option C over Rock Creek Option A. Rock Creek Option A and Rock Creek Option C are both considered by the Corps to be permittable because the aquatic impacts of both options are relatively minor. Therefore, the Corps was neutral in the selection of a Rock Creek Option, and expressed no preference for either one.

D. The bridge over the tributary to North Branch Rock Creek (at Station 329) would not provide much minimization to wetland 1Z. (Robinowitz)

The size of the bridge was reduced between the circulation of the DEIS and the circulation of the FEIS. The smaller bridge was considered sufficient to provide wildlife and pedestrian passage, to accommodate the stream morphology, and to preserve benthic habitat for the comely shiner, while costing much less. Furthermore, the height of the bridge is too low for wetland vegetation to thrive beneath the bridge. To provide wetland minimization, long wingwalls are proposed on the west abutment.

E. Blasting will be required for underground stormwater management systems in the North Branch Rock Creek Park. The blasting will impact the sensitive wetland 1Y. (Robinowitz)

This wetland is expected to receive adequate hydrology because it will continue to receive overland flow from the higher ground to the east, and it is within the 100-year floodplain of the creek.

F. Wetland mitigation site SC-19 does not meet the mitigation site criteria because it is not located in a subwatershed that is impacted by the ICC, it lies in the Agricultural Preserve, and the owners are not willing sellers. (Attorney for the Betty Brown Casey Trust)

While the permit agencies prefer that the mitigation occur in the same subwatershed as the impacts, it is not always possible to find suitable mitigation sites in the same subwatershed. The Corps does not look favorably on the use of upland forested parcels for wetland mitigation, because forests provide important ecological functions. Furthermore, it is generally too expensive to acquire developed property for mitigation. That leaves farms and fields as the preferred land use designation when searching for wetland mitigation sites, and they must be low-lying fields in order to have sufficient hydrology to support a wetland. Such sites are more abundant in the agricultural areas of western Montgomery County than in the more developed study area. Furthermore, given their position in the landscape, the selected mitigation sites offer a high probability for success, which was another important consideration in their selection. The property owner's reluctance to sell is an issue that SHA must contend with in acquiring the property. However, SHA has expressed a willingness to condemn property for mitigation purposes.

G. The concurrence of the Corps and MDE in the Purpose and Need Statement does not justify a wrong choice by the FHWA, and cannot be interpreted as evidence of expert agency support for an overly narrow purpose and need. (Environmental Coalition)

While the Corps does rely on the expertise of the lead agencies to develop the Purpose and Need Statement, the Corps found the project purpose and the project needs to be reasonably supported. There have been many comments concerning the fact that the Purpose and Need limited the solutions to a highway facility, and excluded a transit facility. However, as indicated in Chapter III of the FEIS, all previous studies of transit in the study area showed insufficient ridership to justify the cost. Furthermore, the highest projected ridership on any of the three transit alternatives studied was 23,400 people per day, which was estimated to provide only a 1% reduction in auto travel.[507] In addition, transit is not an effective means of moving freight, which means the local arterial roads would continue to be the only available route for regional truck traffic. The mixing of regional traffic with local traffic on the arterial highways is highly undesirable from a safety standpoint.

H. The SCEA development projections were not included in the Lead Agencies' analysis of potential changes in water temperature and other impacts to the resident and reproducing brown trout population of the Upper Paint Branch (Good Hope Tributary). (Environmental Coalition)

The Environmental Coalition appears to be making the point that the ICC will cause additional development that will further impact the Good Hope Tributary, and that this additional impact was not quantified as a consequence of building the ICC. Figure 11 of the *Secondary and Cumulative Effects Analysis* (SCEA), SHA, 2004, shows the amount of development in the Paint Branch watershed that is expected to occur in the near future (by 2010), even if the ICC is not constructed. Figure 12 of the SCEA shows the development that is expected to occur in the future, after the ICC is constructed. It is apparent that most of the projected development in the Paint Branch Special Protection Area (i.e., the headwaters above Fairland Road) will have already occurred by the time the ICC is projected to be open to traffic. This near-term development is one of the main reasons that the prospect for continued propagation of the trout is uncertain. Nevertheless, numerous features have been incorporated into the ICC to ensure that it does not contribute to the further decline of the resource.

I. The EPA has expressed concerns about the potential loss of the trout population, even if the trout streams are bridged, due to highway runoff into the trout stream, forest clearing, additional sediment load, potential failure of infiltration systems, thermal impacts, and potential hazmat spills. (Environmental Coalition)

As previously mentioned, no stormwater will be permitted to be discharged to the Good Hope or Gum Springs Tributaries. While stormwater will be discharged to the Paint Branch mainstem, it will be stormwater that has first been treated in filtration basins for quality control, and then managed in underground storage basins for quantity control, where it will be further cooled. Water coming off the side slopes of the eastbound roadway will be contained and infiltrated to help offset the loss of infiltration due to the additional pavement. While there will be a permanent loss of approximately 54 acres of forest in the Paint Branch watershed, the three streams will continue to have a broad forested buffer except where they are crossed by the

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[507] *FEIS,* p III-15.

highway. To minimize the potential for further sedimentation, there will be no grubbing of the vegetation that is cleared beneath the proposed bridges except where needed for pier placement or temporary access roads. Redundant erosion and sediment controls will be employed in addition to SHA's new tougher erosion and sediment control standards. SHA also has instituted a new inspection and maintenance program for all stormwater management structures. This will ensure the long-term viability of the infiltration, filtration, and underground structures. EPA also expressed concern for a hazardous material spill into the Paint Branch. This is, indeed, a possibility, although a remote one. This concern was considered to have great significance with Corridor 2 due to the consequences of disrupting the drinking water supply for 550,000 to 650,000 people. Such consequences do not exist on Corridor 1.

J. The permit application and subsequent Draft and Final EIS's have conflicting information about the acreage of wetland impact. (Environmental Coalition)

This is a testament to the continuing avoidance and minimization efforts that have been on-going throughout the project study, and which will continue even after the permit is issued. The construction contract will include financial incentives for further minimization of aquatic impacts.

K. More wetland mitigation should be taking place in the Anacostia watershed, which currently is showing a net loss of wetland acreage as a result of the project. (Environmental Coalition)

While the bulk of the wetland mitigation is outside the affected watersheds, the selected wetland mitigation sites demonstrate a high likelihood of success and high ecological function and value. Furthermore, it should be noted that 18 acres of wetland mitigation will occur in the Anacostia watershed. Consequently, all of the wetland impacts that occur in the Anacostia watershed will be mitigated in the Anacostia watershed, with the exception of the wash pond wetlands which have limited function and value as an aquatic resource. In addition, almost all of the stream mitigation (20,700 linear feet) and all five of the water quality mitigation sites will occur in the Anacostia watershed. These efforts respect the goals of restoring the Anacostia watershed.

L. The FEIS should contain a discussion of avoidance and minimization at each wetland that is impacted by the project. (Environmental Coalition)

Such an analysis is contained in Appendix M and N of the FEIS, Vol. II.

M. The FEIS fails to provide definitive information about bridge and culvert design. (Environmental Coalition)

The bridge lengths and profile are provided in the FEIS, which is typical of the level of detail afforded in an EIS. There is also a discussion of the design criteria for deer passage culverts and small mammal culverts on Page IV-278 of the FEIS.

N. The Montgomery County Water Quality Advisory Group, which advises the County Council on water quality matters, recommends that SHA adopt a non-degradation standard or objective. Also, Mr. Dunmire contends that nothing about this project has changed since the 1997 study. (Cameron, Dunmire)

The Corps concurs that SHA is building this highway using the most environmentally-sensitive approach, and the most stringent erosion and sediment control program ever used on a state highway project. SHA will exceed the MDE requirements for stormwater management by filtering the runoff generated by the first 1.5-inches of rainfall instead of the first 1.0-inch. Underground detention of stormwater will be employed in parklands, and in the Paint Branch watershed to treat any water that will be discharged to the Paint Branch mainstem. This will reduce the need for additional encroachment into forests and parklands, and ensure that the runoff is further cooled prior to discharge to a stream. Infiltration structures will be constructed to offset the infiltration of rainfall that is being lost due to the additional impervious surface. The runoff generated from the first one-inch of rainfall at the MCDPWT maintenance depot will be diverted to Northwest Branch to reduce the heavy metal concentration in the Good Hope Tributary. The profile was raised in the Paint Branch Park to enable the highway runoff to drain into streams other than the Good Hope and Gum Springs Tributaries. Redundant erosion and sediment controls will be used in Use III watersheds. Bridges will be constructed at nine stream crossings and special deer passage culverts will be constructed at 4 other locations. Eight-foot high fencing will be used to funnel deer to the culvert and bridge locations. Seven of the nine bridges will be 38 feet high, or higher, to minimize the disturbance to wildlife and hikers below. The bridge over Rock Creek will be a context-sensitive design which will be aesthetically attractive (most likely an arch type structure). Approximately 2000 additional feet of bridging was added to the project since the 1997 study. Retaining walls will be used to reduce impacts to aquatic resources and communities. The profile is depressed near communities. A 625-foot long cut-and-cover section will reduce community impacts at Winters Run. Two alignment shifts were incorporated to reduce impacts to Rock Creek Park and Northwest Branch Park. Another alignment shift was incorporated to reduce impacts to a population of State-threatened halberd-leaved greenbrier and State-endangered rough-leaved aster, and their habitat in wetland 6J will be protected through a conservation easement. The project employs generous criteria for noise walls, making every noise-impacted community eligible for walls or berms. The project includes 7.5-miles of hiker-biker trail. There is an unprecedented mitigation package for FIDS habitat, as well as mitigation for parkland, forest, wetland, and stream losses. The project demonstrates a previously unsurpassed level of commitment to the human and natural environment.

O. The stormwater pollutant discharges should be analyzed as part of the MDE 401 Water Quality Certification (WQC), including any potential for water quality violations or impairment of designated uses. (Cameron)

The MDE 401 WQC will consider thermal impacts and water quality impacts of stormwater discharges. The conditions of the WQC will become conditions of the Corps permit.

P. Please show us scientific studies and analyses performed in the current ICC study to indicate water quality will be sufficiently maintained to support a Use III designation. As the

DEIS indicates, construction and operation of a highway generates impacts of warm water discharges, loss of stream base flow, increased sediment loads, and increased chemical pollutants. All these impacts can irreversibly damage Paint Branch's high quality resource if not adequately minimized and mitigated. There remains a significant question whether such measures are sufficient to protect the Paint Branch. Also, there is a concern that cost overruns may result in pressure to eliminate some of these measures. (Maryland Native Plant Society)

The following measures are being undertaken to protect the Paint Branch:

- No runoff will be discharged to the Good Hope or Gum Springs Tributaries.
- Infiltration structures will be constructed to offset the loss of infiltration caused by the new pavement.
- Erosion and sediment controls will be actively monitored, even on weekends and holidays. Redundant controls will be employed. SHA's new Erosion and Sediment Control Program is more stringent than the previous program. By condition of MDE's WQC, stream restoration in the upstream reaches of the Good Hope Tributary will occur before the highway is constructed. A reduction in the sediment load that is caused by bank erosion will help offset any sediment releases from the highway project. There will be no grubbing of vegetation under bridges, except where needed for pier foundations and temporary access roads.
- The first 1-inch of rainfall from the Maintenance Depot will be redirected to Northwest Branch to reduce metals, chemical pollutants, and thermal impacts currently being discharged to the Good Hope Tributary.
- Filtration structures will be used for quality management of stormwater that is discharged to the Paint Branch mainstem. Twelve-hour detention will be employed for quantity management. Underground stormwater basins will be used within the park to reduce the amount of forest clearing and parkland loss.
- Runoff from bridge decks in the Paint Branch watershed will be captured and treated prior to release in the Paint Branch mainstem.
- Streams and floodplains in the Paint Branch watershed will be bridged. Any temporary crossings of the streams by construction access roads will be accomplished with bridges.
- Construction techniques will ensure that the spring seep at Station 673 continues to discharge cool water to the Good Hope Tributary.
- Twelve acres of wetland mitigation, 6700 linear feet of stream restoration, one fish blockage removal, and five water quality improvement projects are proposed in the Paint Branch watershed as mitigation for the highway impacts to 1.45 acres of wetland and 1565 linear feet of stream.

All these commitments are required by special conditions of the Corps permit, which can only be modified in compliance with Corps regulations.[508]

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[508] 33 C.F.R. § 325.7(b) (2005).

It cannot be proved that these measures will be sufficient to protect the Paint Branch. However, the three principal highway-generated impacts threatening the trout nursery in Good Hope and Gum Springs Tributaries (thermal impacts, impervious surface, and sediment during construction) have been addressed (see Section III.E.5. and Section III.H. of this document) and the Corps is confident that the measures imposed by special conditions of the Corps permit and the State water quality certification will prevent the ICC from causing significant degradation of the trout stream. The continuing development of the watershed is expected to result in further degradation of the trout resource, whether or not the ICC is constructed. Should the trout stream experience further degradation following construction of the ICC, it would be difficult to determine the degree to which the ICC contributed to that degradation and the degree to which future development contributed.

Q. The measures that the County has undertaken to protect and improve the Paint Branch (SPA designation, Environmental Overlay Zone, park acquisition program, stormwater management retrofit program, and stream restoration projects) have been crafted with the recognition that all development and supporting infrastructure must be implemented with the aim of truly protecting the Paint Branch. (Maryland Native Plant Society)

Although the County has invested millions of dollars in projects and programs to improve and protect the Paint Branch, the County Council continues to support Corridor 1 as the preferred alternate for the ICC. The Corps has been thoroughly involved in the study, has evaluated the alternatives, and has independently determined that, in consideration of the avoidance, minimization, and mitigation measures proposed, including the measures that will be implemented to protect the trout stream, Corridor 1 is the Least Environmentally Damaging Practicable Alternative.

R. Heated runoff from summer storms will continue to stress the Good Hope trout stream. How can building a major highway along the Good Hope possibly improve the health of the stream? (Maryland Native Plant Society)

No ICC runoff will be permitted to be discharged into the Good Hope or Gum Springs Tributaries. Although runoff will be discharged to the Paint Branch mainstem, it will have already undergone some cooling as it passes through the filtration basins and is stored in the underground chambers.

S. If the Good Hope and Gum Springs Tributaries are degraded and can no longer support trout, the anti-degradation statute would be violated. If these streams cannot support trout, the Paint Branch watershed's trout fishery would collapse. (Maryland Native Plant Society)

The study team recognizes the importance of these two tributaries as a nursery for all the trout in the Paint Branch system. Numerous measures have been proposed to ensure that spawning is not disrupted. Furthermore, restoration of degraded streams in the Paint Branch system will be undertaken to improve the habitat conditions of the resource. Also, the first flush from the Maintenance Depot will be redirected to the Northwest Branch watershed to remove a source of metals and heated water from the Good Hope.

T. The Fairland Master Plan Citizen Advisory Committee was not consulted by the EPA or the Corps regarding changes to the ICC alignment. (Rochester)

Implementing regulations for NEPA and the CWA require an alternatives analysis be conducted before a permit for a major federal action can be issued by the Corps of Engineers.[509] There was exhaustive public outreach through this NEPA process.

U. Two sections of the hiker-biker trail were eliminated because the Corps said they lacked independent utility. (Titus)

The admission that these segments lacked independent utility came from SHA's preliminary FEIS. The Corps indicated that this objection could be overcome by extending these two segments to the next cross road. SHA chose not to extend them.

V. The devastating noise increases, loss of scarce interior forest habitat, disruption of aquatic ecosystems, and loss of the wetland seeps and springs will collectively result in the loss of the wild trout population. The mitigation occurs mostly in the Right Fork and Left Fork subwatersheds, and will provide little benefit for the Good Hope and Gum Springs. SHA is not providing replacement habitat for the self-reproducing trout population in the Paint Branch, or anything that could even remotely be considered as an equivalent value. (Dunmire, Eyes of Paint Branch).

Wetland losses amount to only 1.45 acres in the Paint Branch watershed. There are 12 acres of proposed wetland mitigation in the Paint Branch watershed. The seep at Station 673 would be filled, but construction techniques will ensure that the seep continues to discharge cool water to the Good Hope. Stream impacts amount to 1565 linear feet but 6,700 linear feet of stream restoration is proposed in the watershed as mitigation. The ICC would add 39.2 acres of impervious surface to the Paint Branch watershed. Five water quality improvements would be constructed within the watershed to treat the runoff from 346 acres of land. One fish blockage would be removed from the Paint Branch mainstem. Some of these mitigation measures are located in the Good Hope subwatershed.

W. The FEIS provides little cause for the regulatory agencies to not reject the ICC as they have in the past. The only exception could be excessive political pressure for the environmental regulatory agencies to comply, which would constitute a terrible abrogation of public trust and a violation of professional and personal integrity. (Dunmire)

Much has changed about this project since the previous study. It is now being developed with a previously unsurpassed level of environmental commitment, and measures have been proposed to prevent significant degradation of the trout stream and reduce the park impacts. Furthermore, with the passage of the 1996 amendments to the Safe Drinking Water Act, EPA published new guidelines titled "State and Federal Source Water Assessment Protection" which

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[509] 40 C.F.R. § 230.10 (2005) and 40 C.F.R. Pts. 1500 - 1508 (2005).

recognize that there are many harmful disinfection byproducts to the chlorination process, and protection of source water is equally important to treatment. With this sharpened focus on protecting the water quality of the Rocky Gorge Reservoir, which is the drinking water supply for 550,000 to 650,000 residents, the concerns for avoiding the reservoir watershed become paramount to the public interest.

X. Diversion of runoff from the ICC in the Good Hope and Gum Springs watersheds would result in a loss of critical groundwater recharge to the aquifers in these subwatersheds, which would thus reduce base flows in these tributaries. (Dunmire)

The amount of runoff being diverted from the Good Hope amounts to less than 2% of the surface area of the Good Hope watershed, and less than 1 % of the Gum Springs watershed. Furthermore, the loss of groundwater recharge, attributable to the new impervious surface, would be offset by MDE requirements for infiltration of highway runoff, contained in MDE's 2000 Maryland Stormwater Design Manual, and required by special condition of the Corps permit.

Y. The trapping efficiency of state-of-the-art sediment control measures is at best 80%, and is frequently less. The short term impacts during construction are not adequately accounted for in the FEIS. (Dunmire)

In the Use III watersheds, redundant erosion and sediment controls will be required. This means that there will be multiple controls both at the source of the sediment and at the treatment end. Some examples include use of flocculents in sediment basins, pumping sediment-basin water through silt bags to increase the capacity of the basin between storm events, additional rows of silt fence, reducing the amount of earthwork that can be exposed before stabilization must be applied, and scheduling the earthwork to minimize the exposure of bare slopes. Each contractor submitting a bid is required to include their proposed methods for complying with this requirement. In addition, SHA has a new Erosion and Sediment Control Program which has incentives and disincentives for erosion and sediment control, a more consistent rating system, more authority to remove non-performing contractors, and SHA assistance in re-setting controls that are damaged by severe weather. This will be the most stringent erosion and sediment control program ever utilized on a SHA project.

Z. Does SHA intend to comply with the County requirements of the Environmental Overlay Zone (which mandates that for every acre of impervious surface added to the Paint Branch watershed by a proposed development, 10 times that amount must be preserved as pervious surface). (Dunmire)

The project would add 39.2 acres of impervious surface to the Paint Branch watershed. The replacement parkland that is being provided within the Paint Branch watershed amounts to 171.6 acres. This will fall short of the 10:1 requirement that the County places on developers.

AA. Some pro-ICC zealots in upper management at MNCPPC have stifled the concerns of environmental staff. State and local officials treated Corridor 1 prejudicially for decades. Other viable alternatives were not pursued as aggressively as Corridor 1. (Dunmire)

The two Build Alternatives and the No-Build Alternative that were advanced for detailed study were analyzed in comparable levels of detail. While the Corps was aware, based on the previous study, how entrenched the County officials were in their support for Corridor 1, this position did not predispose the Corps to supporting Corridor 1. The Corps remained neutral and objectively evaluated all the information before making its decision. This Record of Decision documents the many issues that the Corps considered in making the decision to authorize Corridor 1.

BB. It is not sufficient to merely meet state standards. State standards are a collection of compromises intended for use across the entire state in a variety of conditions. The Paint Branch contains highly-valued, sensitive resources and state standards do not come close to the protection that is needed for a stream that contains water quality that is among the highest in the state. (Dunmire)

Filtration of the first 1.5 inches of rainfall exceeds state standards. Underground basins for managing the channel protection volume exceed state standards. Redundant erosion and sediment controls exceed state standards. Treating the runoff from bridge decks is not a normal requirement. Redirecting the runoff to avoid discharges into the Good Hope and Gum Springs is not mandated by state standards. Redirecting the runoff from the Maintenance Depot is not required by state standards. Building bridges that are long enough to completely span the floodplain of Good Hope, Gum Springs, and Paint Branch mainstem exceeds state standards. Requiring that temporary equipment access roads completely span these same streams exceeds state standards. Providing parkland mitigation for indirect impacts of noise or FIDS habitat loss is unprecedented in Maryland.

CC. What is the cost to stabilize all stream banks in the study area watersheds? (Goldstein)

SHA's response to this comment in the FEIS stated that it is beyond the scope of this study to provide cost estimates for stream restoration on the scale mentioned. Mr. Goldstein's comments on the FEIS indicated he was not satisfied with this response. The Corps concurs with the response.

DD. The studies of groundwater and stream impacts are not correct because they do not take into account the altered hydrology associated with building the Norbeck Road Connector. (Bullock)

The existing conditions of the stream and wetlands in each watershed were fully described in the Natural Environmental Technical Report and summarized in Chapter II of the FEIS. In addition, the potential for impacts to aquatic resources was discussed in Chapter IV of the FEIS. All these studies were conducted after the Norbeck Road project was completed, so the effect of the Norbeck Road widening has been taken into consideration.

EE. The SCEA findings were not included in the Lead Agencies' analysis of potential

changes in water temperature and other impacts to the resident and reproducing brown trout population of the Upper Paint Branch (Good Hope Tributary). (Environmental Coalition)

The SCEA document quantified the development impact in terms of how many acres of new development are projected to occur. This unit of measure was used to compare the two Build alternatives and the No-Build alternative. Numerous studies from across the country (*Impacts of Impervious Cover in Aquatic Systems, Watershed Protection Research Nomograph No.1*, Center for Watershed Protection, 2003) have shown that biological, chemical, and hydrologic impacts to surface waters are directly related to the amount of impervious surface added to the watershed. Therefore, as the development acreage increases, impacts to water quality also increase. As indicated in Section V. A. 6. of this Record of Decision, the amount of development induced by the ICC in the Paint Branch watershed (133 acres) is small in comparison to the development that is projected to occur without the ICC (2650 acres prior to 2010 [*SCEA*, Page IV-131], plus 948 additional acres between 2010 and 2030 [*SCEA*, Page IV-132]). While the FEIS did not model the pollutant loads from this projected development, the SCEA indicated that this amount of projected development would likely degrade the ability of even the best tributaries to support a trout population rebound (*SCEA*, Page IV-131).

FF. The Lead Agencies' modeling for each Build Alternative is incomplete, even for Corridor 2. There is no apparent explanation why the Lead Agencies would model direct and indirect impacts from Corridor 2 on only a single watershed (Rocky Gorge), while omitting any analysis of other watersheds or surface water resources which are equally likely to be impacted by development of Corridor 2.(Environmental Coalition)

The Comparative Water Resources Hazard Assessment was prepared after the DEIS was circulated, and was initiated in response to concerns expressed by stakeholders that Corridor 2 would impact the drinking water supply. It was meant to address the need for further analysis of a specific issue that was relevant to the decision on a preferred alternative. The environmental resource agencies also wanted to receive this additional information.

VII. Permit Decision

I find that the benefits of the proposed project outweigh the damage to the aquatic environment associated with this project. And after careful consideration of information provided by the applicant, recommendations from other government agencies and comments received, I find that the proposed project is not contrary to the public interest and that the issuance of a Department of the Army permit is warranted, pursuant to my authority in 33 C.F.R. § 325.8.

Prepared by:

/S/ 9 June 2006

Paul Wettlaufer Date
Transportation Program Manager

Reviewed by:

/S/ 9 June 2006

Janet M. Vine Date
Chief, Regulatory Branch

/S/ 9 June 2006

Christina E. Correale Date
Chief, Operations Division

Approved by:

/S/ 13 June 2006

Robert J. Davis Date
Colonel, Corps of Engineers
District Engineer

The Intercounty Connector

The Adapted ICC Planning Process - FEIS Activities

(refined 7.27.05)

DRAFT

Conceptual Schedule Scenarios

(please note that four schedule scenarios are presented to reflect the 3-Tier Dispute Resolution Process)

Schedule requiring Step III Dispute Resolution						10.12.05	10.19.05		11.23.05			1.4.06	1.18.06
Schedule requiring Step II Dispute Resolution				9.28.05			10.5.05		11.9.05			12.21.05	1.4.06
Schedule requiring Step I Dispute Resolution			9.14.05				9.21.05		10.26.05			12.7.05	12.21.05
Schedule (Dispute Resolution avoided)	7.13.05	7.28.05	8.03.05	8.17.05	w/o 8.22.05	8.24.05	8.31.05		9.7.05		10.12.05	11.23.05	12.7.05

Dispute Resolution

FEIS Review (without Preferred Alternative (PA) Chapter)

FEIS Review (with PA Chapter)

PACM Review, Comments and Concurrence Process

1. SHA / MdTA Distributes Draft Preferred Alternative and Conceptual Mitigation (PACM) Package to IAWG
2. Begin Receiving Agency Comments on Draft PACM
3. SHA / MdTA Presents Project Team's Recommended Alternative and distributes Preliminary FEIS to IAWG (see note #4)
4. Receive Agency Comments
5. SHA / MdTA hosts IAWG Summit to provide off-site retreat area to review FEIS and for interaction with Project Team Members
6. SHA Revised PACM Package to IAWG/ Agencies and formal Concurrence requested and/or Comments
7. FHWA, ACE, MDE concur on PACM or Step I Dispute Resolution initiated
7a. Conduct Step I Dispute Resolution (if necessary)
7b. Conduct Step II Dispute Resolution (if necessary)
7c. Conduct Step III Dispute Resolution (if necessary)
8. SHA / MdTA distributes Final PACM and Preliminary FEIS Preferred Alternative Chapter to IAWG
9. FHWA issues FEIS
10. FHWA issues Record of Decision

3 weeks | 2 weeks | 2 weeks | 5 weeks | 6 weeks | 2 weeks

IAWG 8.03.05 | IAWG 9.7.05 | IAWG 10.5.05 | IAWG 11.2.05

2 weeks | 2 weeks | 2 weeks

If Corps concurs on PACM, Corps will provide Draft Permit to Elevating Agencies to Initiate the 75-day resolution process (404(C) - see note #5)

11.14.05 | 11.28.05 | 12.12.05 | 12.26.05

MDE issues Provisional Water Quality Certificate (WQC)/ Provisional Coastal Zone Consistency Determination (CZCD)

Corps completes public interest review and decision documents

Corps Issues Permit Decision

Legend

- Adapted ICC Planning Process
- Army Corps of Engineers Individual Permit Process
- IAWG — IAWG Meetings

Notes:

1. FEIS Format - The FEIS is being prepared using the Traditional Approach as defined in Technical Advisory T6640.8A. Under this approach, the final EIS incorporates the draft EIS essentially in its entirety with changes throughout the document to reflect the selection of an alternative, project modifications, changes in impact assessment, definition of mitigation measures, the results of coordination and comments received on the draft EIS along with responses to these comments. New information will be highlighted in an errata to assist the reviewer in identifying what is new and or revised data from the DEIS.

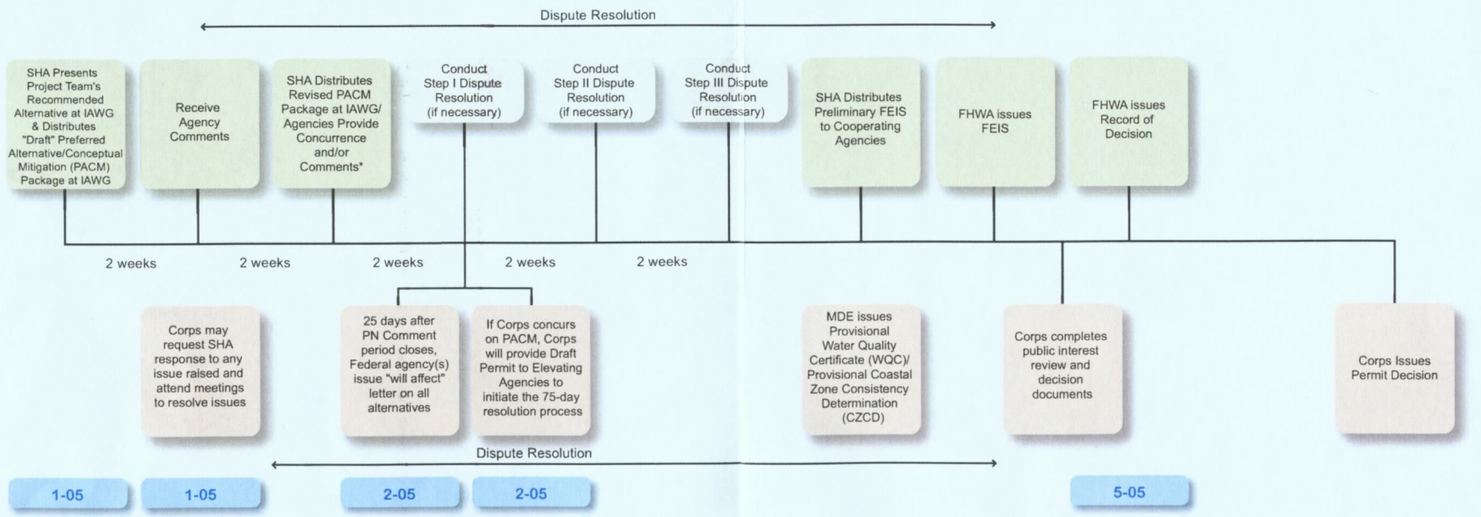
2. August 3rd PFEIS Contents - The Project Team proposes to submit portions of the Preliminary FEIS to IAWG on August 3rd IAWG which would address both Corridors 1 and 2 consistent with the traditional approach and would be prepared without the Preferred Alternative Chapter. This is not a request to review the document but is being distributed as a courtesy in case any of the agencies desire to begin their review. Formal review of the Preliminary FEIS would be requested at a proposed Summit tentatively scheduled for the week of August 22nd. The Preferred Alternative Chapter would subsequently be distributed to IAWG concurrently with the Final PACM (following concurrence by FHWA, ACE and MDE and comments by all other IAWG agencies).

3. P+1 Meetings - P+1 Meetings will occur generally one week before or following IAWG meetings in September and October.

4. PACM Review / Concurrence Process - Please note that the 11.03 ICC Adapted Process identified 6 weeks between the distribution of the PACM and initiation of Tier I Dispute Resolution (should it be necessary). The 7.05 Refined Process provides 9 weeks between Draft PACM distribution and the initiation of Tier I Dispute Resolution (should it be necessary).

5. 404(C) Process - FHWA would monitor the Section 404(C) process (if necessary) prior to issuing a Record of Decision.

Extracted from 11.12.03 ICC Adapted Planning Process



ENCLOSURE 1

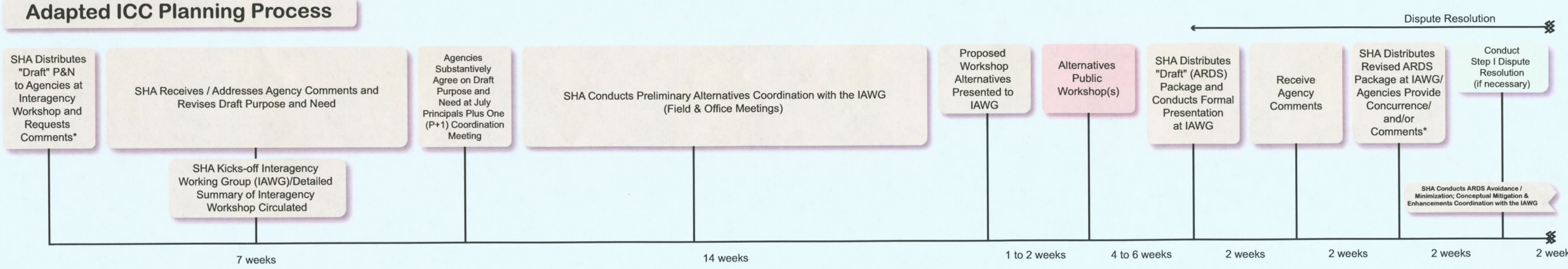
7.27.05

The Intercounty Connector

The Adapted ICC Planning Process

DRAFT

Adapted ICC Planning Process



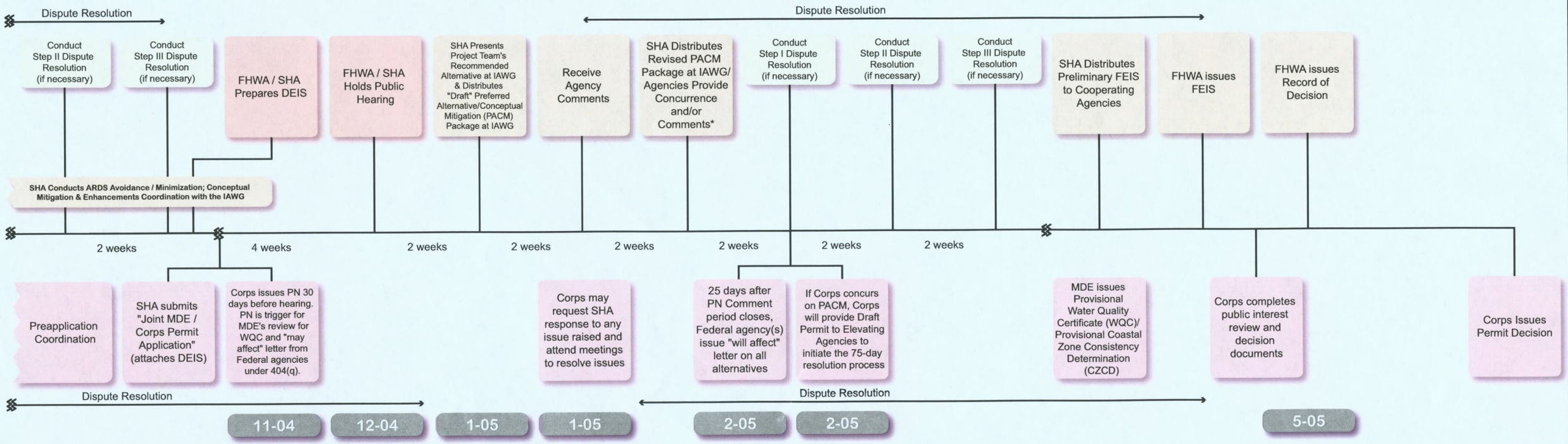
Army Corps of Engineers Individual Permit Process

* Note: Concurrence will be sought from the ACOE and MDE for Purpose & Need, Alternatives Retained for Detailed Study (ARDS) and for the Preferred Alternative and Conceptual Mitigation (PACM). All other federal, state, and local agencies will be commenting agencies.

Preapplication Coordination

Dispute Resolution

6-11-03 | 7-16-03 | 7-30-03 | 8-03 through 11-03 | 11-03 | 1-04 | 1-04 | 2-04



ENCLOSURE 1

Revision 6.0 11-12-03

				Approximate Change to Impacts															
Number by Contract	FEIS Plate Number	Location	Source of Modification	Wetlands (acres)	Wetland Buffer (acres)	Waters of the US (Ephemeral - linear feet)	Waters of the US (Perennial/ Intermittent - linear feet)	Floodplain (acres)	Parks (acres)	Specimen Tree Impacts (each)	Forest Impacts (acres)	FIDS Impacts Direct/Indirect/ Total (acres)	RTE Impacts (acres/ habitat)	Community Impacts	Cultural Resources	Noise and Air	Right of Way (acres)	Displacements (each)	Cost ($) Millions[1]	Description
A.1	6	Overhill Road	SHA Right of Way Division	0	0	0	0	0	0	0	-0.67	0/0/0	0	Reduced R/W take from seven properties	Minor Change in LOD – Previously Identified Low Potential Area - No Additional Impacts	No air/noise impacts	-1.28	0	-$0.30	Overhill Road would be reconstructed/constructed to provide access to Cashell Estates properties. In the FEIS, the portion of existing Overhill Road that was shown being reconstructed was centered on the existing Overhill Road right of way. Due to the additional width of the new typical section (designed to meet Montgomery County standards), as well as the additional width needed for erosion and sediment control, the proposed right of way was shown impacting the properties on the east side of existing Overhill Road. By shifting the new roadway to the west slightly, closer to the ICC and onto properties that are scheduled to be displaced by the ICC, strip takes can be eliminated for five properties and reduced for two properties.
A.2	13 and 14	MD 97 Interchange	Safety Improvements	0	0	0	0	0	0	1	1.14	0/0/0	0	No changes near communities	Minor Change in LOD – Previously Identified Low Potential Area - No Additional Impacts	No air impacts. Minor changes in noise levels. No changes in barriers.	0.87	0	$0.95	In the FEIS, the ICC at MD 97 interchange was shown with two exits from both directions of the ICC (one for Northbound MD 97 and one for Southbound MD 97). During the safety study process performed by SHA concurrently with the development and review of the FEIS, the potential to combine these dual exits into single exit points was studied. While the FEIS interchange configuration was in conformance with AASHTO, it was determined by the safety study process that it would be desirable (based on both AASHTO preferences and traffic operations/signing) to combine the exits into single exit points.
A.3	2	Metro Access Road	Safety Improvements	0	-0.001	0	0	0.001	0	2	1.25	0/0/0	0	No changes near communities	Reduction or No Change in LOD – No Additional Impacts	No air impacts. Minor changes in noise levels. No changes in barriers.	2.44	0	$3.60	In the FEIS, the ICC at Metro Access Road/ Shady Grove Road Interchange was shown with two mainline lanes through the interchange versus the three lanes found elsewhere on the project. This configuration was based on high entering and exit volumes from ICC to the Metro Access Interchange. The safety study process performed by SHA identified this configuration as not being in conformance with the basic number of lanes criteria. While the configuration as shown in the FEIS did not show deficiencies in the traffic simulation, there was a desire of the team to conform to the basic number of lanes criteria. Further traffic simulations and study determined that the third thru lane in each direction would be beneficial to traffic operations in the near term, conform to AASHTO criteria, and would provide the flexibility to accommodate shifting traffic patterns within the interchange in the future with minimal capital expense.
A.4	2	Metro Access Road	Design Exception Review	0	0	0	0	0	0	0	0.05	0/0/0	0	No changes near communities; slight ramp shift (10') to the north	Minor Change in LOD – Within ROW – No Additional Impacts	No air/noise impacts	0	0	$0.00	During a design review of the FEIS, Ramp F1 in the Metro Access Road interchange was found to contain a curve that did not meet AASHTO minimum curve length design criteria. The proposed refinement corrects this deficiency by a minor realignment of the ramp.
A.5	1	MD 355	Safety Improvements	0	0	0	0	0	0	0	0	0/0/0	0	Change in ramp configuration/mod. of cut/fill limits; no change near communities	Minor Change in LOD – Within ROW – No Additional Impacts	No air/noise impacts	0	0	$0.10	As part of the SHA performed safety process, a study was conducted to determine alternate designs for the merging of Ramps L and M within the Metro Access Interchange. In the FEIS, Ramp M was shown merging with Ramp L using a yield condition, which would be undesirable from a traffic operations standpoint. The safety study revealed that a minor revision in ramp alignments at MD 355 would allow reconfiguration of the proposed signal to allow a right turn from Ramp L, in addition to a free right turn from Ramp M. This configuration allows the two ramps to remain separated, thereby eliminating the need for a yield or weaving condition.
A.6	6	ICC Station 174+00, Mill Creek Stream Valley Park	Regulatory Agency	0	0.14	0	0	0.08	0.05	0	0.05	0/0/0	0	No change near communities; pedestrian passage added to culvert configuration	Minor Change in LOD – Within ROW – No Additional Impacts	No air/noise impacts	0.05	0	$0.00	During review of the FEIS, SHA in coordination with the regulating agencies studied numerous configurations of bridges and culverts at Station 174+00. At this location, the focus of the discussions was the appropriate method of crossing the tributary to Mill Creek and the two seeps that supply water to downstream wetlands. In addition, M-NCPPC desired that pedestrian passage be accommodated at this location as part of a future trail system. After review of the studies, it was determined that twin box culverts would be the appropriate solution at this location. One box culvert would carry the stream, while a second shorter culvert would serve as pedestrian and deer passage while also carrying flood flows. Geotechnical techniques would be used to control the seeps and allow the water to continue to feed the downstream wetlands.

Enclosure 2

				Approximate Change to Impacts															
Number by Contract	FEIS Plate Number	Location	Source of Modification	Wetlands (acres)	Wetland Buffer (acres)	Waters of the US (Ephemeral - linear feet)	Waters of the US (Perennial/ Intermittent - linear feet)	Floodplain (acres)	Parks (acres)	Specimen Tree Impacts (each)	Forest Impacts (acres)	FIDS Impacts Direct/Indirect/ Total (acres)	RTE Impacts (acres/ habitat)	Community Impacts	Cultural Resources	Noise and Air	Right of Way (acres)	Displacements (each)	Cost ($) Millions[1]	Description
A.7	2	ICC Station 114+58 to Station 159+66	Design Exception Review	0	0	0	0	0	0	0	0	0/0/0	0	No change near communities	Minor Change in LOD – Within ROW – No Additional Impacts	No air impacts. Minor changes in noise levels. No changes in barriers.	0	0	$0.00	The safety study process performed by SHA identified two curves on the ICC between Station 114+58 and Station 159+66 that did not meet AASHTO curve length criteria. The two curves would be removed and replaced with one long curve meeting AASHTO length criteria. The revision to the roadway baseline would not be significant and requires no additional impacts or right of way.
A.8	14	MD 97	Community	0	0	0	0	0	0	0	-0.06	0/0/0	0	Reduced impacts to visual buffer between ICC & Park Lake Dr. Community	Reduction or No Change in LOD – No Additional Impacts	No air impacts. Minor changes in noise levels. No changes in barriers.	-1.15	0	$0.00	Through coordination with the local communities at MD 97, a request was received to review the potential to reduce the number of pedestrian crossings of Ramps associated with the shared use path on the west side of MD 97. The SHA reviewed this request and determined that it would be feasible to shift Ramps E and F such that a single intersection with MD 97 is formed, thereby reducing the number of ramp crossings on the pedestrian facility. In this manner the crossing would also take place at a signalized intersection. The alignment revision did not require a change in AASHTO design speeds and had little impact on the traffic operations of the interchange.
A.9	6	Mill Creek Stream Valley Park, Station 174+50	Remnant wetland study	0.20	0.26	0	0	0	0	0	0	0/0/0	0	No change	Reduction or No Change in LOD – No Additional Impacts	No air/noise impacts	0	0	$0.00	Impact to a seep within the limits of disturbance will cut off the hydrology to the remaining wetland system 1H. This is a change in impact analysis, not a change in the design shown in the FEIS.
A.10	14	MD 97 Station 202+00	November 2005 Jurisdictional Determination	-0.21	-0.12	0	0	0	0	0	0	0/0/0	0	No change	Minor Change in LOD – Within ROW – No Additional Impacts	No air/noise impacts	0	0	$0.00	The jurisdictional determination conducted in November 2005 reduced the size of the wetland 1FF, resulting in a decrease of impacts. This is a change in impact analysis, not a change in the design shown in the FEIS.
A11	8	North Branch Stream Valley Station 312+00	GEC Design Review	-0.01	0	0	0	0	0	0	0	0/0/0	0	No Change	Reduction or No Change in LOD – No Additional Impacts	No air/noise impacts	0	0	$0.00	An impact analysis after the FEIS was published, not a change in the design, illustrated that there was a complete avoidance of wetland 1T.
A.12	12A	North Branch Stream Valley Station 328+00	GEC Design Review	0	0	0	130	0	0	0	0	0/0/0	0	No Change	Minor Change in LOD – Within ROW – No Additional Impacts	No air/noise impacts	0	0	$0.00	An impact analysis was conducted after the FEIS was published. It was determined through coordination with the resource agencies that the oxbow along the tributary to the North Branch (stream 1Z) would be impacted or would need to be relocated.
A.13	8	Muncaster Mill Road	Montgomery County Emergency Services	0	0	0	0	0	0	0	0	0/0/0	0	No Change	Minor Change in LOD – Within ROW – No Additional Impacts	No air/noise impacts	-0.41	0	$0.44	Addition of Emergency Vehicle Access Ramps from Muncaster Mill Road to/from the ICC at the request of Montgomery County to improve incident response times. In conjunction with this addition, the access to the pedestrian trail was moved from the east side of MD 115 to the west side.
A.14	1,2	I-370	GEC Design Review	0	0	0	0	0	0	0	0	0/0/0	0	No Change	Reduction or No Change in LOD – No Additional Impacts	No air/noise impacts	0	0	$0.00	Median on I-370 was revised from 36' to 30' to eliminate the need to widen both the inside and outside of the existing bridges on I-370. This shift also takes advantage of the existing full width abutments in the existing median. In coordination with this revision, the west end limit of work was revised from Station 5022+00 to Station 5020+00.
A.15	8	Avery Park Drive	Community Request	0	0	0	0	0	0	0	0	0/0/0	0	Berm and plantings will provide additional visual buffer	Minor Change in LOD – Previously Identified Low Potential Area - No Additional Impacts	No air/noise impacts	0	0	$0.00	The limits of disturbance were modified to include a berm to be constructed in coordination with the Avery Park Drive Community association. The berm, requested by the community, will provide a visual buffer between the community and the ICC. The berm will be constructed partially on the residences' property using entry agreements.
A.16	6	Redland Road	GEC Design Review	0	0	0	0	0	0	0	0	0/0/0	0	No Change	Minor Increase in LOD - Previously Tested - No Additional Impacts	No air/noise impacts	0	0	$0.00	The limits of disturbance at the Shady Grove Presbyterian Church were modified slightly - the previous limits of disturbance ran through the middle of the existing SWM pond. The limits of disturbance were adjusted to include the entire pond. This work will be completed using a construction easement.
A.17	2	Shady Grove / Metro Access Road	GEC Design Review	0	0	0	0	0	0	0	0	0/0/0	0	No Change	Reduction or No Change in LOD – No Additional Impacts	No air/noise impacts	0	0	$0.00	The limits of disturbance at the Shady Grove Road / Metro Access Road Interchange were reduced to more accurately reflect the expected limits of work vs. the FEIS which showed the limits of disturbance at the limits of the existing right of way.

Enclosure 2

				Approximate Change to Impacts																
Number by Contract	FEIS Plate Number	Location	Source of Modification	Wetlands (acres)	Wetland Buffer (acres)	Waters of the US (Ephemeral - linear feet)	Waters of the US (Perennial/ Intermittent - linear feet)	Floodplain (acres)	Parks (acres)	Specimen Tree Impacts (each)	Forest Impacts (acres)	FIDS Impacts Direct/Indirect/ Total (acres)	RTE Impacts (acres/ habitat)	Community Impacts	Cultural Resources	Noise and Air	Right of Way (acres)	Displacements (each)	Cost ($) Millions[1]	Description
A.18	6 and 13	Nedham Rd, Garrett Road, Sycamore Lane	GEC Design Review	0	0	0	0	0	0	0	0	0/0/0	0	Cul-de-sac at Sycamore Lane & modification of both cul-de- sacs at Garrett Road and Nedham Road improve turn around capabilities for the community and access to SWM facilities.	Minor Change in LOD – Previously Identified Low Potential Area - No Additional Impacts	No air/noise impacts	0.23	0	$0.00	The radius of the Nedham Rd and Garrett Rd cul de sacs were increased to meet the county requested size. A cul de sac was added at Sycamore Lane.
A.19	14	MD 97	GEC Design Review	0	0	0	0	0	0	0	-1.97	0/0/0	0	Forest to remain will provide additional visual buffer	Reduction or No Change in LOD – No Additional Impacts	No air/noise impacts	0	0	$0.00	The limits of disturbance were modified at MD 97, Ramp F right, to ensure preservation of an existing forest stand.
A.20	14	MD 97	Community Request	0	0	0	0	0	0	0	0	0/0/0	0	Berm and plantings will provide additional visual buffer	Minor Change in LOD – Previously Identified Low Potential Area - No Additional Impacts	No air/noise impacts	0	0	$0.00	The limits of disturbance were modified to include a berm to be constructed in coordination with the Brooke Manor Community association. The berm, requested by the community, will provide a visual buffer between the community and the ICC.
A.21	2	Shady Grove Road and I-370 Interchange	Study to identify advance mitigation opportunities	0	0	0	0	0	0	0	0	0/0/0	0	No change	Reduction or No Change in LOD – No Additional Impacts	No air/noise impacts	0	0	$0.00	An advanced reforestation site was identified in the southwest quadrant of the I-370/Shady Grove Road Interchange. This site was included in the FEIS LOD limits. This site will provide approximately 0.98 acres of reforestation credit for the project. Most of the site area is within existing SHA right-of-way. However, a portion of the southern edge runs along a WMATA property (tax map GS123 Parcel P264) as shown in the tax maps. SHA has an agreement with WMATA, because the resolved property map incorporates this property into the right-of-way of through highway.
B.1	15	MD 28	GEC Design Review	0	0	0	0	0	0	0	-0.27	0/0/0	0	No change near communities	Reduction or No Change in LOD – No Additional Impacts	No air/noise impacts	-1.70	0	-$0.80	Design refinements to tie construction to the existing roadway resulted in the MD 28 eastern limit of work being reduced approximately 430' and the western limit of work being reduced approximately 260'. The reconstruction of Wintergate Drive was reduced by 170'. Coordination with the MD 28 / MD 198 planning project reduced the limits of disturbance in the southwest quadrant by a maximum of 70', in southeast quadrant by approximately 170' and increased the limits of disturbance in the northeast quadrant by a maximum of 45'.
B.2	15, 16, 17	ICC - mainline profile from Station 415+ to east of MD 182	GEC Design Review / Design exception Review	0	0	0	0	0	0	0	0	0/0/0	0	No change within Longmead community.	Change in grade in vicinity of Willow Grove	No air impacts. Minor changes in noise levels. Minor changes in barriers.	0	0	-$2.00	Mainline profile raised a maximum of 8' and lowered a maximum of 4.4' between Station 415+00 and Station 482+00 to better balance earthwork, and improve ramp profile. This resulted in no changes to the limits of disturbance, but provides the opportunity to create an earth berm which increases the visual screening of the roadway from the Willow Grove property, which had been requested by the property owner. In accordance with the MOA, preliminary and final design of the berm and landscaping will be submitted to SHPO and the property owner for review and comment prior to implementation.
B.3	17	ICC / MD 182 Interchange	Safety Improvements	0	0	0	0	0	0	0	0	0/0/0	0	No change near Longmead community	Minor Increase in LOD - Previously Tested - No Additional Impacts	No air/noise impacts	0	0	$0.20	Minor refinements made to MD 182 ramp curvature, approach/departure angles and profile for greater consistency with AASHTO criteria and for consistency throughout the project. These minor refinements created no changes in limits of disturbance, though a retaining wall was added right of Station 495+00 to avoid an increase in limits of disturbance.
B.4	17	MD 182 Layhill Local Park	GEC Design Review	0	0	0	-22	0	-0.22	0	-0.02	0/0/0	0	Reduced construction footprint, no change near communities	Reduction or No Change in LOD – No Additional Impacts	No air/noise impacts	-0.42	0	-$0.12	Design refinements to tie construction to the existing roadway resulted in the MD 182 northern limit of work being reduced approximately 350' and the southern limit of work being reduced approximately 550'. MD 182 horizontal alignment north of station 305+00 realigned to tie-in more rapidly. Mainline profile between Station 504+00 and Station 524+00 raised a maximum of 2.3' and lowered a maximum of 3.4'. Limits of disturbance reduced due to limit of work reductions. Reduced impacts to Stream 2MA

Enclosure 2

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B.6b	19	Northwest Branch Park - Station 564+	Regulatory Agency	0	0	0	0	-0.04	-0.07	0	-0.01	0.001/0.012/ 0.013	0	No change near communities	Minor Change in LOD – Previously Identified Low Potential Area - No Additional Impacts	No air/noise impacts	0	0	$0.00	Eastern abutment skewed on ICC bridge over Bonifant Road and Northwest Branch to better match existing contours and floodplain delineation. Overall limits of disturbance reduced within floodplain, though there is a minor increase on the south side of the bridge.
B.8	20	Notley Road profile	GEC Design Review	0	0	0	0	0	0	0	0	0/0/0	0	Slight change in profile; No change near communities	Reduction or No Change in LOD – No Additional Impacts	No air/noise impacts	0	0	$0.00	Notley Road profile refined to move sump off of bridge. This resulted in no changes to the limits of disturbance.
B.9	20	ICC - mainline profile at Notley Road	GEC Design Review	0	0	0	0	0	0	0	0	0/0/0	0	Likely imperceptible change in noise level/barrier from Royal Forest Lane & Paula Lynn Drive	Reduction or No Change in LOD– No Additional Impacts	No air impacts. Minor changes in noise levels. Minor changes in barriers.	0	0	-$2.50	Refinements to Notley Road profile noted above allowed for raising the ICC profile between Stations 614+00 to 652+00 a maximum of 8.9' and subsequently a reduction in waste material on the project. This resulted in no changes to the limits of disturbance.
B.10	20, 25	ICC - Proposed trail from Notley Road to MD 650	Regulatory Agency/ GEC Design Review	0	0	0	0	0	0	0	0	0/0/0	0	Likely imperceptible change in noise level/barrier from Paula Lynn Dr.	Reduction or No Change in LOD – No Additional Impacts	No air impacts. Minor changes in noise levels. Minor changes in barriers.	0	0	$0.00	Trail moved to south side of ICC from east of Notley Road to west of MD 650 to address Regulatory Agency concerns and enhance trail connectivity at MD 650. This resulted in no changes to the limits of disturbance.
B.11	25	ICC / MD 650 Interchange	Safety Improvements	0	0	0	0	0	0	0	0.34	0.06/0.08/0.14	0	No change near communities	Minor Change in LOD – Previously Identified Low Potential Area - No Additional Impacts	No air/noise impacts	0.34	0	$0.00	Minor refinements made to MD 650 ramp curvature, approach/departure angles and profiles for greater consistency with AASHTO criteria and for consistency throughout project. This resulted in minor increases to the LOD. These minor increases occur along both ramps on the east side of MD 650. There are no associated park impacts.
B.12	25	MD 650	GEC design review	0	0	0	0	0	0	0	-0.02	0.003/0/0.003	0	No change near communities	Minor Increase in LOD - Previously Tested - No Additional Impacts	No air/noise impacts	-2.88	-2	-$3.23	Design refinements to tie construction to the existing roadway resulted in the MD 650 northern limit of work being reduced approximately 300' and the southern limit of work being reduced approximately 400'. Limits of disturbance reduced due to limit of work reductions. Two displacements were avoided in northwest quadrant.
B.14	26	ICC - Mainline profile adjustment between Station 695+ and Station 735+.	GEC Design Review	0	0	0	0	0	0	0	-0.53	-0.44/-0.42/-0.86	0	Likely imperceptible change in noise level/barrier from Spring Oak Estates	Reduction or No Change in LOD – No Additional Impacts	No air impacts. Minor changes in noise levels. Minor changes in barriers.	-0.53	0	-$2.8	Mainline profile refined (raised a maximum of 14.7') between Good Hope and Paint Branch to better balance earthwork. Limits of disturbance decreased overall, though it increased by a small amount in some areas.
B.15	27	ICC - horizontal and vertical alignment adjustment from bridge crossing Gum Springs and Paint Branch to Countryside community.	GEC Design Review	0.01	0.01	0	0	0	0	0	0.27	0.001/0.004/0.005	0	Alignment shift away from Countryside Ct; likely imperceptible change in noise level/barrier from Countryside, Fairland Estates, Hardings Run communities	Minor Change in LOD – Previously Identified Low Potential Area - No Additional Impacts	No air impacts. Minor changes in noise levels. Minor changes in barriers.	0.27	0	-$2.6	Horizontal and vertical refinement made to mainline to reduce length and height of retaining wall left of Station 760+00. This refinement pulled the ICC slightly away from the residences in Countryside (an 18' high wall had been proposed left of Station 760+00 immediately adjacent to the abutting residential parcels; whereas with the refinement a 12' wall 12' away from the property line is needed). The refinements also reduce the need for a retaining wall right of Station 766+00 and better balance the earthwork from Station 748+00 to 780+00 by raising the profile a maximum of 14.6'. The limits of disturbance increased in some areas and decreased in others. There is a slight increase of impact to wetland system 3M.
B.17	27	Station 756+00	Remnant wetland study	0.19	0.31	0	0	0	0	0	0	0/0/0	0	No change	Reduction or No Change in LOD – No Additional Impacts	No air/noise impacts	0	0	$0.0	Impact to a seep within the limits of disturbance will cut off the hydrology to the remaining wetland system 3O. This is a change in impact analysis, not a change in the design shown in the FEIS.

Enclosure 2

INTERCOUNTY CONNECTOR PROJECT - FINAL - SUMMARY OF POST FEIS REFINEMENTS - May 10, 2006

5/17/2006 14:26

Number by Contract	FEIS Plate Number	Location	Source of Modification	Approximate Change to Impacts: Wetlands (acres)	Wetland Buffer (acres)	Waters of the US (Ephemeral - linear feet)	Waters of the US (Perennial/ Intermittent - linear feet)	Floodplain (acres)	Parks (acres)	Specimen Tree Impacts (each)	Forest Impacts (acres)	FIDS Impacts Direct/Indirect/ Total (acres)	RTE Impacts (acres/ habitat)	Community Impacts	Cultural Resources	Noise and Air	Right of Way (acres)	Displacements (each)	Cost ($) Millions[1]	Description
B.19	27	Upper Paint Branch Stream Valley Park Sta 750+	FHWA Section 4(f) Determination	0.00	0	0	0	0	4.9	0	0	0/0/0	0	No change	Reduction or No Change in LOD – No Additional Impacts	No air/noise impacts	0	0	$0.0	Consistent with the Section 4(f) Evaluation Addendum prepared in response to comments received on the FEIS/Section 4(f) Evaluation, the description of the Dedicated Transportation Area uses through the Upper Paint Branch Stream Valley Park have been modified. Three parcels on the eastern edge of the park were purchased with the intent of using them for parkland prior to the ICC alignment being shifted north in the park to avoid natural environmental impacts. As depicted in the Section 4(f) Addendum, these parcels are now being considered Section 4(f) resources.
C.3	28	EB ICC off-ramp to Briggs Chaney	Safety Improvements	0	0	0	0	0	0	0	0	0/0/0	0	No change	Reduction or No Change in LOD – No Additional Impacts	No air/noise impacts	0	0	$0.50	The deceleration lane for the eastbound ICC to Briggs Chaney Road loop ramp was lengthened to provide a longer deceleration lane. Modification required additional impervious surface and a wider bridge over Ramp SE
C.4	28	NW quadrant of the ICC/US 29 interchange	Regulatory Agency	0	0	0	0	0	0	0	0	0/0/0	0	Conservation easement will provide protection for the existing vegetated buffer between the facility and the Avonshire community in perpetuity.	Reduction or No Change in LOD – No Additional Impacts	No air/noise impacts	0	0	$0.00	A request was made by a Resource Agency to protect the existing wooded area between Ramps SW and SE and the Avonshire residential community by placing a conservation easement on the undisturbed portion of the property currently owned by SHA. This conservation easement will preserve 5 acres forest, 0.2 acres wetland, 0.4 acres wetland buffer and 480 linear feet of stream in perpetuity.
C.5	28	NE quadrant of the ICC/US 29 interchange	Developer	0	0	0	0	0	0	0	-0.08	0/0/0	0	No change	Minor Change in LOD in vicinity archaeological site 18MO609 – to be covered by Phase II investigation	No air/noise impacts	-0.10	0	$0.00	An auto park developer requested a modification of the limits of disturbance in the NE quadrant of the interchange so that a fire loop road, required by Montgomery County, could be provided around his proposed new dealership. SHA agreed to the requested change and reduction in limits of disturbance, but required the developer to accommodate ICC drainage through this area with his improvements, and to work with SHA on two other parcels he owns east of here that may require ICC work on them.
C.9	28	ICC at US 29 Interchange	Traffic Analysis	0	0	0	24	0	0	2	0.44	0/0/0	0	No change	Reduction or No Change in LOD – No Additional Impacts	No air/noise impacts	0.28	0	$3.00	Ramps WS and NE were changed from single lane to two lanes in order to better accommodate heavy projected traffic volumes as well as potential future shifting traffic patterns within the ICC/US 29 interchange. This required adjustments in two other ramps (WS and SE), limit of grading lines and limits of disturbance lines in isolated areas, particularly north of the ICC near the existing regional pond and south of the pond adjacent to Tanglewood residences. No direct additional residential property impacts were caused, however the fill and limits of disturbance lines moved closer to their property line. The northern limits of disturbance change resulted in minor stream (3R), floodplain and forest impact increases.
C.10	28/29	SB US 29 to Fairland Road ramp	SHA/GEC	0	0	0	0	0	0	0	0	0/0/0	0	No change	Reduction or No Change in LOD – No Additional Impacts	No air/noise impacts	0.93	0	$1.00	The previously noted future southbound US-29 off-ramp to Fairland Road has been added as an ICC improvement. This was recommended in order to allow the ICC and existing US-29/Fairland Road intersection to operate acceptably in the interim should the ICC be open to traffic before the US-29/Fairland Road grade separation and interchange is open.
C.11	29	US 29 improvements south of Fairland Road	SHA/GEC	0	0	0	0	0	0	0	0	0/0/0	0	No change	Minor Change in LOD – Within ROW – No Additional Impacts	No air/noise impacts	0	0	$1.75	An auxiliary lane in both directions was added to US-29 between Fairland Road and the Randolph Road ramps as an interim solution, assuming the ICC is open to traffic before the US-29 improvements between Briggs Chaney and Randolph Road are constructed and open to traffic. These impacts were accounted for in the US-29 FEIS.
C.12	31	Briggs Chaney	Safety Improvements	0	0	0	0	0	0	0	0.06	0/0/0	0	Improved access to ICC on ramp from Gentry Ridge CT; minor realignment of bike trail tie-in to Briggs Chaney	Reduction or No Change in LOD – No Additional Impacts	No air/noise impacts	0.39	0	$0.20	The ICC off-ramp intersection at Briggs Chaney Road was modified to better accommodate truck turning movements, and a realignment of the Briggs Chaney Road/on-ramp intersection, to align with Gentry Ridge Court, was made to avoid an access concern for these residences. Modification led to a slight change in the limit of grading and limits of disturbance line.

Enclosure 2

				Approximate Change to Impacts															
Number by Contract	FEIS Plate Number	Location	Source of Modification	Wetlands (acres)	Wetland Buffer (acres)	Waters of the US (Ephemeral - linear feet)	Waters of the US (Perennial/ Intermittent - linear feet)	Floodplain (acres)	Parks (acres)	Specimen Tree Impacts (each)	Forest Impacts (acres)	FIDS Impacts Direct/Indirect/ Total (acres)	RTE Impacts (acres/ habitat)	Community Impacts	Cultural Resources	Noise and Air	Right of Way (acres)	Displacements (each)	Cost ($) Millions[1]	Description
C.14	27	Station 783+00	Remnant wetland study	0.07	0.23	0	0	0	0	0	0	0/0/0	0	No change	Reduction or No Change in LOD – No Additional Impacts	No air/noise impacts	0	0	$0.00	As a result of the remnant wetland study requested by the Regulatory Agencies, it was determined that the entire wetland system 3PA would be impacted. This is a change in impact analysis, not a change in the design shown in the FEIS.
C.15	32	Between Little Paint Branch Park and Old Gunpowder Road	SHA	0	0	0	0	0	0	0	0	0/0/0	0	No change	Reduction or No Change in LOD – No Additional Impacts	No air/noise impacts	0	0	$0.15	This revision includes the addition of a section of bike trail along the south side of the ICC from Little Paint Branch Park (Sta. 887+) to Old Gunpowder Road.
D.1	32	ICC between Brigg's Chaney and Little Paint Branch	Regulatory Agency	0.07	0.18	0	0	0.49	0	0	-0.01	-0.81/-0.23/-1.04	0	No change	Minor Change in LOD – Within ROW – No Additional Impacts	No air impacts. Minor changes in noise levels. Minor changes in barriers.	0	0	$0.60	Resource Agencies requested that the bridge over Little Paint Branch be raised to provide a minimum underclearance of at least 30 feet. Raising of the profile led to increasing the fill, limit of grading line and limits of disturbance in all four quadrants, as well as additional permanent wetland impacts to wetland 3X, particularly the two fingers to the north and south of the eastern bridge abutment. The modification was accomplished without an impact to the park property in the southeast quadrant, avoiding a new 4(f) impact.
D.3	33	NE quadrant of the ICC/ I-95 interchange.	Safety Improvements	0	0	0	0	0	0	0	0	0/0/0	0	No change	Minor Change in LOD – Within ROW – No Additional Impacts	No air and noise impacts	0.36	0	$0.50	The potential weave from Ramp I-C to Ramp I-G was eliminated and the Ramp I-C gore moved further to the north on Ramp I-GG to eliminate this potential undesired movement. The modification required an increase in the limit of grading and the potential addition of a short retaining wall, but no change in limits of disturbance. Ramp I-C traffic will now proceed to Ramp I-GG (modified) and then north via the CD road to NB I-95. Ramp I-G traffic will be given the option to proceed directly onto I-95 or enter the CD road via Ramp I-GG (modified).
D.6	36	NE quadrant of the I-95/Old Gunpowder Road overpass.	SHA Right-of-Way	0	0	0	0	0	0	0	0	0/0/0	0	No change	Reduction or No Change in LOD – No Additional Impacts	No air and noise impacts	0	-1	-$0.50	Upon further investigation, it was determined that the impact to the residential property in the northeast quadrant of the I-95/Old Gunpowder interchange was so minor that this property did not need to be acquired. The displacement of this residence was therefore removed.
D.7	33	I-95 at ICC	Traffic Analysis	0	0	0	0	0	0	0	0	0/0/0	0	No change	Reduction or No Change in LOD – No Additional Impacts	No air/noise impacts	0	0	$0.00	Two I-95/ICC interchange ramps (Ramp I-K and Ramp I-A) were changed from single lane to two lanes to provide greater operational flexibility for the merging of these two ramps on a CD prior to merging with southbound I-95. This modification required minor adjustments in the alignment and pavement, but no change in the proposed location of the retaining wall adjacent to the bog.
D.8	37	I-95 Station 820-830	Jurisdictional Determination	0	0	-966	0	0	0	0	0	0/0/0	0	No change	Reduction or No Change in LOD – No Additional Impacts	No air/noise impacts	0	0	$0.00	Ephemeral stream WYY was determined not to be jurisdictional during the January 2006 jurisdictional determination with the Regulatory Agencies. This is a change in impact analysis, not a change in the design shown in the FEIS.
D.9	39	I-95 Station 925-935	Jurisdictional Determination	0	0	0	-5	0	0	0	0	0/0/0	0	No change	Reduction or No Change in LOD – No Additional Impacts	No air/noise impacts	0	0	$0.00	The jurisdictional limits of stream WOO were reduced during the January 2006 jurisdictional determination with the Regulatory Agencies. This is a change in impact analysis, not a change in the design shown in the FEIS.
E.6	40	ICC/US 1 interchange	Traffic Analysis	0	0	0	0	0.02	0	0	0	0/0/0	0	No change	Reduction or No Change in LOD – No Additional Impacts	No air and noise impacts	0	0	$0.00	A modification to the continuous flow intersection's westernmost intersection was made that eliminated the need for a signal in the westbound direction. This movement has been replaced with a free flow right turn lane that will be merged back to westbound ICC just beyond the intersection.
Totals				**0.32**	**1.01**	**-966**	**127**	**0.55**	**4.66**	**5**	**-0.04**	**-1.19/-0.55/-1.74**	**0**				**-2.31**	**-3**	**-1.86**	

Footnotes

1 Construction estimates are neat construction including contingency plus Right of Way including contingency.

Enclosure 2